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APPENDIX

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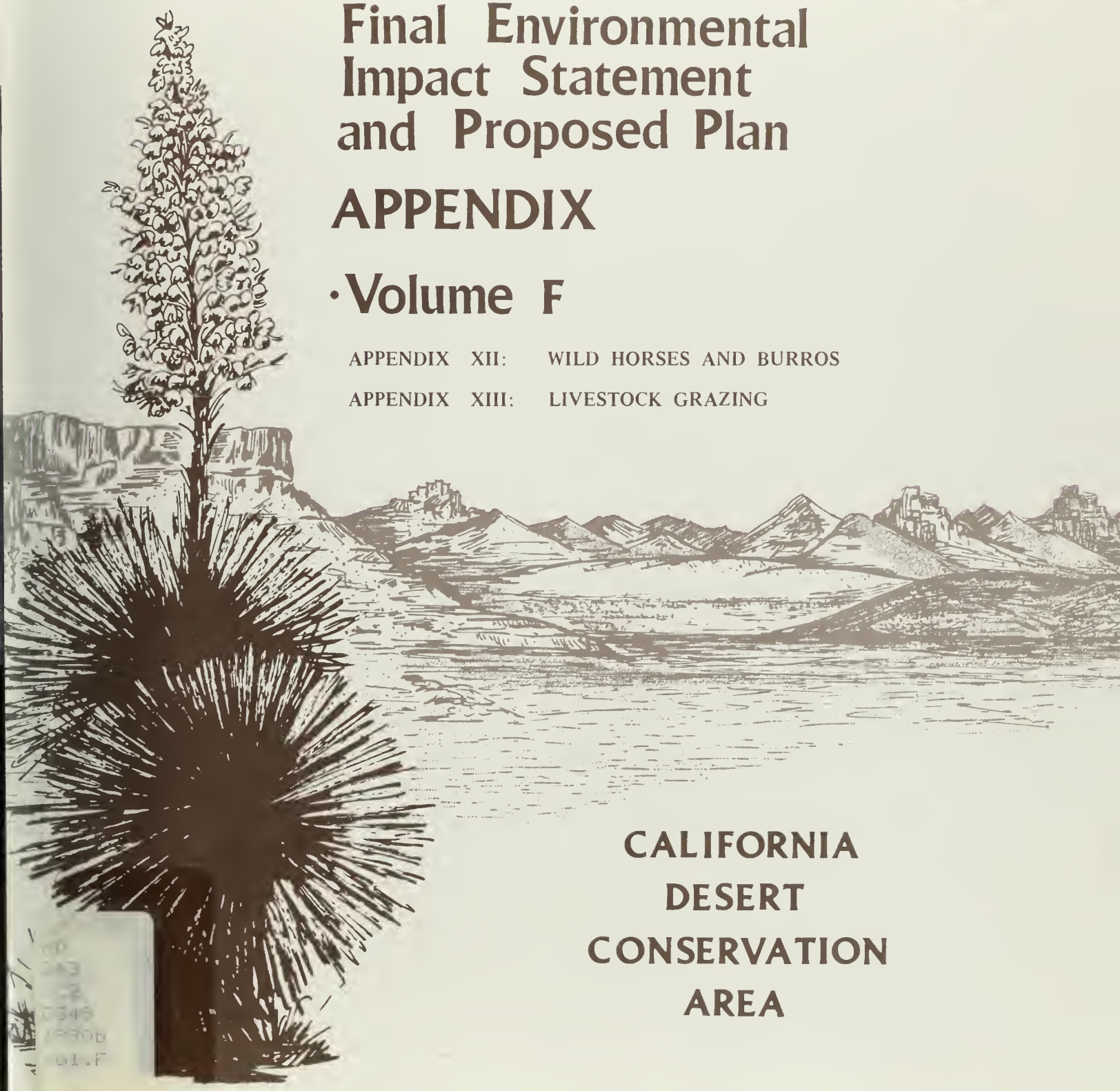

CALIFORNIA DESERT CONSERVATION AREA

APPENDIX XII

WILD HORSES AND BURROS

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APPENDIX XII
WILD HORSES AND BURROS

Part 1

Carrying Capacity and Forage Allocation Methodology in Wild Horse and Burro Concentration Areas

CHANGES MADE FROM DRAFT PLAN

During the week of May 12 through May 16, the BLM California Desert Planning Staff, Bakersfield District, and Riverside District personnel who were familiar with wild horse and burro management met to update and finalize the Wild Horse and Burro (WH&B) Herd Management Areas (HMAs) and the concentration areas within these HMAs. Information from outside agencies was also used to make final boundary and population estimates.

An HMA may be defined as the range or extent of movement the wild horses and burros are estimated to cover in a normal year's time. Individual animals may cross over from one HMA to another during their lifetime, but the majority of the population remains within the boundaries of one HMA. Concentration areas are, during most years, areas where wild horses and burros tend to congregate to a degree that there is a high probability of encountering them.

Optimum numbers of wild horses and burros will be based upon these areas. This method of setting population numbers is based upon the assumption that when the resources are properly managed within the concentration areas, the remaining portion of the HMA will be in good condition.

Most of the changes in boundary lines are based on updated information from BLM resource specialists concerning distribution and movement patterns of the animals. Higher population figures result from the 10 percent estimated annual increase of the animals and from combining a group of HMAs into one HMA for the proposed plan. Reduction in population estimates is a result of the gathering of excess wild horses and burros during the past year. This information was recorded on the form shown in Example 2 of this appendix.

CALCULATION OF RECOMMENDED POPULATION LEVELS WITHIN CONCENTRATION AREAS

A Landsat image composed of 23 spectral classes was used to calculate the amount of available forage. (Refer to the Landsat information in Appendix XIII, Livestock Grazing, for a more detailed discussion of spectral classes.)

Spectral classes within boundaries of the concentration areas were delineated and the percentage of the concentration area comprised by spectral class was calculated (refer to Cols. 1 and 2 of Example 1). The acreage contained in each spectral class (Col. 3) was calculated by multiplying the percentage of concentration area by the total acres of concentration area (total of Col. 3). The pounds of forage per acre for each spectral class (Col. 4) were multiplied by the acreage of the class to give total pounds of forage in that class (Col. 5). This procedure was repeated for each class in the concentration area.

The total amount of available forage (Line A of Example 1) was divided by 1,000 pounds to calculate the total amount of animal unit months (AUMs) for the concentration area (Line B). Approximately 1,000 pounds of forage equals the amount of forage required to sustain a cow and her calf for one month (one AUM). By dividing the total amount of AUMs (Line B) by 12 months of use, the number of wild horses (Line C) that can be maintained by this amount of forage was calculated.

To calculate the number of burros that can be maintained in the concentration area, the total AUMs was divided by 12 months and then that result divided by seven-tenths (Line E). A burro and its offspring do not consume a full AUM of forage per month. Consequently, for the burros, the number of animal units are divided by seven-tenths.

These final AUM figures are referred to as the carrying capacity of the concentration area.

Each specialist determined the condition and trend of the concentration areas (Line 3 of Examples 3 and 4). When the condition was classified as good, the carrying capacity was not adjusted. A condition classification of fair caused the carrying capacity to be reduced by 25 percent. When the condition was classified as poor, the carrying capacity was reduced by 50 percent. These adjustments in carrying capacity were made for the same reason that they were adjusted in livestock, i.e. to improve the range condition in a timely manner.

Each of the concentration areas and its carrying capacity was reviewed by wildlife biologists, archaeologists, and Native American resource specialists (Lines 5 and 7). These individuals provided recommended numbers of wild horses and burros used on the resources and advised of possible resource conflicts that could occur in the concentration area (Lines 6 and 8). The specialists identified management prescriptions for wild horses and burros which could possibly eliminate resource conflicts. If these management prescriptions could mitigate the conflicts, then this option was chosen, rather than elimination of the herd from the concentration area.

The wild horse and burro specialists estimated the percentage of time the wild horses and burros spend in the concentration areas. The recommended numbers for all of an HMA concentration area were totaled and that figure

divided by percentage of time spent in the concentration area. The resulting number was the maximum level of animals that could be maintained in the entire HMA.

When an existing population level of wild horses and burros is less than the maximum allowed level, and no resource conflicts are identified, then the Herd Management Area Plan (HMAP) should address opportunities for adjustments in the proposed population level through monitoring resources and examining existing and potential water sites (Line F of Example 5).

CALCULATION OF WH&B AUM ALLOCATION WITHIN AN ALLOTMENT

When an HMA exists within an allotment, a forage allocation for livestock and wild horses and burros has to be made out of the amount of forage remaining after the wildlife and forage condition allocations are deducted.

For an illustration of how allocation of AUMs was made inside an allotment, refer to Example 5 of this appendix. The amount of AUMs remaining after allocations to wildlife and forage condition in the Valley View allotment is 9,396 AUMs (Line A). The authorized livestock use for this allotment is 8,485 AUMs (Line B).

In order to calculate the maximum allowable burro allocation in an HMA, the total amount of AUMs recommended by resource specialists (571 AUMs for the Lava Beds HMA) is divided by the percentage of time the wild horses and burros spend in the concentration areas (70% in the Lava Beds HMA). The maximum number of burros that can inhabit the Lava Beds HMA is 97 burros (816 AUMs). The total AUM demands for this allotment (line D=9,301) is equal to the sum of authorized livestock use (8,485 AUMs) and the maximum number of AUMs for wild horses and burros (816). Since the demand (Line D) is less than available AUMs (Line A), there is no conflict for AUMs inside the allotment, and AUM allocations for burros and livestock are 816 and 8,485, respectively.

Calculation of wild horse and burro allocation is not always this straightforward. In this example, the HMA was totally within the boundaries of the allotment. In some cases, only portions of an HMA are in an allotment or more than one allotment is in an HMA.

Forage allocation for wild horses and burros will only be made on public lands. The percentage of public land is multiplied by the maximum number of AUMs allocated to wild horses and burros. This figure is now the maximum AUM allocation for wild horses and burros. On large blocks of nonpublic lands, such as the Chemehuevi Indian tribal lands and military withdrawal lands, this deduction will not be made unless a cooperative agreement cannot be obtained from the agencies to manage wild horses and burros on their lands.

The number of wild horses and burros allowed in an HMA could decrease if total demand for AUMs within an allotment is greater than the available AUMs.

In this case, available AUMs (Line A of Example 5) is divided by the total AUM demand of the allotment (Line D). This percentage is multiplied by the authorized livestock use to arrive at the livestock allocation of the allotment. The HMA's capacity for wild horses and burros (Line E or F) is also multiplied by this percentage to calculate the WH&B forage allocation for the allotment.

Forms like those depicted in these examples were completed for each of the HMAs and allotments within an HMA. These documents are available at the California Desert District office for public review.

Priorities for allocation between domestic livestock, wild free-roaming horses and burros, and wildlife were that allocations for wildlife were given priority over either the domestic livestock or wild horses and burros. Allocations between domestic livestock and wild horses and burros were treated as equal in priority.

Part 2

Examples of Forage Allocation Methodology

Example 1

CONCENTRATION AREA 28

SPECTRAL CLASS	Spectral Class In Conc. Area	Acres	Lbs/Acre	Lbs. In Spectral Class
15	80	10,880	46	500,480
9	8	1,088	86	93,568
14	10	1,360	28	38,080
8	2	272	89	24,208
TOTAL	100	13,600		632,128

A. Total lbs. of forage in concentration area = 632,128
B. Total AUMs available in concentration area (Total lbs./1,000 lbs) = 632
C. Total Animals Units (AUMs/12) = 53
D. Maximum number of wild horses allowed = 0
E. Maximum number of wild burros allowed (AUs/.7)= 76

Example 2

I. HERD MANAGEMENT AREA (HMA) Lava Beds

A. CHANGES FROM DRAFT PLAN: The name has been changed from Indian Spring HMA to be consistent with its name in the interim HMAP. The boundaries of the HMA have not changed.

B. The existing population figure was reduced because of the roundup which took place during 1980. This information was provided by the Cima Resource Area WH&B Specialist.

Example 3

CONCENTRATION AREA (C.A.) #28 for HMA Lava Beds

1. Number of acres in C.A. 13,600

2. Carrying capacity in C.A. 632 AUMs

3. Condition and trend in C.A. Fair

4. Carrying capacity adjusted for condition 474 AUMs

5. Wildlife resource concerns: 12 square miles of non-crucial Shadow Valley desert tortoise habitat (SB-26)

6. Wildlife's recommended WH&B numbers: 50% of carrying capacity (38 burros, 316 AUMS)

7. Cultural Resource concerns: Approximately 10 sq. miles of high sensitive/significant areas are located within this Concentration Area. Sites include rock art, rock alignments, a lithic scatter and historicremains. These sites are distributed near Henry and Granite Springs where the sites will be impacted the most. Impact would result from trampling and increased erosional activity caused by destruction of cover and establishment of trails.

8. Cultural Resources' recommended WH&B numbers: 38 burros. 316 AUMs

Example 4

CONCENTRATION AREA (C.A.) #29 for HMA Lava Beds

1. Number of acres in C.A. 16,500
2. Carrying capacity in C.A. 640 AUMs
3. Condition & trend in C.A. Poor
4. Carrying capacity adjusted for condition 320 AUMs
5. Wildlife resource concerns: 3 square miles of desert tortoise habitat having a density of 20-50 tortoises per square mile. six square miles of the nominated (but not proposed) Indian Springs ACEC.
6. Wildlife's recommended WH&B numbers 50% carrying capacity (320 AUMs, 38 burros)
7. Cultural Resource concerns: Approximately 9 square miles of very and 11 square miles of high sensitivity/significant areas in the C.A. Sites include rock art, rock shelters, temporary camps, lithic scatters, milling stations.
8. Cultural Resources' recommended WH&B numbers 252 AUMs - 30 burros.

Example 5

II. ALLOTMENT Valley View (For Lava Beds HMA)

A. AUMs REMAINING FOR WH&B AND LIVESTOCK 9,396

B. AUTHORIZED LIVESTOCK USE 8,485 AUMs

C. CALCULATION OF WH&B AUM NEEDS INSIDE ALLOTMENT
Recommended AUMs for all C.A. = 571
571/.70 (percent of the time spent in C.A.) = 816 AUMS or burros.

D. TOTAL AUM DEMANDS 9,301

E. CONFLICT AUMs BETWEEN WH&Bs AND LIVESTOCK 0

F. BURRO ALLOCATION INSIDE ALLOTMENT 816 potential (630 existing) AUMs

G. HORSE ALLOCATION INSIDE ALLOTMENT 0 AUMs

H. LIVESTOCK ALLOCATION 8,485 AUMs

KEY TO TABLE XII-1

* The first line for each HMAP is for burros, and the second is for wild horses.

1 The HMAPs are listed by priority. High priority HMAP implementation must be initiated by FY 81 and reduced to the proposed level by FY 86. Medium priority HMAPs should be implemented by FY 82 and reduced to the proposed level by FY 89. Low priority HMAPs must be started by FY 83, and the population should be reduced to the proposed level by the end of FY 90. HMAPs with less than 200 animals to gather will be reduced to the proposed level in one year.

2 The cost estimates are based on $300/animal for removal and adoption plus a 10 percent contingency. This cost may decrease slightly in the first two years, but may increase as the population reaches the proposed level.

3 These figures reflect the 10 percent annual increase. Some of these numbers will be adjusted, based on information being gathered by the agencies who have jurisdiction over the animals.

4 The HMAPs will address the rate and frequency of removal of the WH&B's range on the China Lake Naval Weapons Center. It is expected that the Navy will provide 80 percent of the quoted funds each of the five years.

5 Approximately 80 percent of the WH&Bs range on the China Lake Naval Weapons Center. It is expected that the Navy will provide 80 percent of the quoted funds each of the five years.

6 BLM Yuma District Office has taken lead responsibility in HMAP preparation, and proposed numbers may differ based on site-specific analysis. Yuma District Office plans on implementing and reducing the population to the proposed level in FY 81. Yuma District Office has requested that California Desert District Office contribute $20,000 plus 10 work months or a total of $40,000.

7 For the East Mojave HMA, when removal begins in FY 82, populations are expected to be at 1,254 burros and 12 wild horses. For the Chicago Valley HMA, when removal begins in FY 83, populations are expected to be at 216 burros and 87 wild horses. For the Low Desert HMA, when removal begins in FY 83, populations are expected to be at 61 burros and 31 wild horses.

TABLE XII-1

REMOVAL RATE AND COST OF REMOVAL AND ADOPTION FOR WILD HORSES AND BURROS*

HERD MGMT AREA PLANS[1]	Existing Population	FY 81 Number Removed	FY 81 Cost of Removal[2]	FY 82 Number Removed	FY 82 Cost of Removal	FY 83 Number Removed	FY 83 Cost of Removal	FY 84 Number Removed	FY 84 Cost of Removal	FY 85 Number Removed	FY 85 Cost of Removal	Proposed Level	Total # of WH&Bs Removed [3]	Total Cost Removing, Adopting Animals
Saline/	2,840	613	$200,000	613	$200,000	613	$200,000	613	$200,000	613	$200,000[4]	714	3,065	$1,000,000
Panamint Valleys	200	200	65,000		-	-	-	-	-	-	-	0	200	65,000
Centennial	4,524	913	300,000[5]	913	300,000	913	300,000	913	300,000	913	300,000	1,545	4,565	1,500,000
Valley	600	127	42,000	127	42,000	127	42,000	127	42,000	127	42,000	168	635	210,000
Colorado River	1,216	1,044[6]	40,000+	-	-	-	-	-	-	-	-	172	1,044	40,000+
	45	3	-	-	-	-	-	-	-	-	-	42	3	
East Mojave	1,140	-	-	332[7]	110,000	332	110,000	332	110,000	332	110,000	174	1,328	440,000
	12	-	-	6[7]	2,000	-	-	-	-	-	-	6	6	2,000
Chicago Valley	178	-	-	-	-	106[7]	35,000	-	-	-	-	110	106	35,000
	72	-	-	-	-	42[7]	15,000	-	-	-	-	45	42	15,000
Low Desert	50	-	-	-	-	29[7]	9,500	-	-	-	-	32	29	9,500
	26	-	-	-	-	11[7]	4,000	-	-	-	-	20	11	4,000
TOTAL		2,570	$647,000	1,858	$654,000	1,993	$715,500	1,858	$652,000	1,858	$652,000	2,747	10,137	$3,320,500
		330		133		180		127		127		281	897	

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LIVESTOCK GRAZING

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APPENDIX XIII
LIVESTOCK GRAZING

Part 1

A Short History of Grazing in the California Desert Conservation Area

Range use on the California Desert parellels that of much of the Southwest. Initial stocking started prior to 1875, increased rapidly to a peak around the turn of the century, and then began to taper off as overstocking and settlement activities began to show their effects. In some instances the pressures of settlement activities probably preceded the inevitable decline of the range.

The northern and eastern Mojave regions of the desert have been the most stable because of distance from major population centers and because they were free from land ownership changes that plagued many other areas of the desert. The much discussed, and at times exaggerated, overstocking conditions do not appear to have existed to any great extent in the northern Mojave. In the eastern Mojave, however, severe overstocking appears to have taken place between 1900 and 1940. This position is supported by Rock Springs Land and Cattle Co. records (Casebier, 1976) which show a tally count of 9,223 head in Jan. 1, 1920. By 1960, stocking rates are believed to have been down to a more realistic level, about 6,000 to 7,000 head.

Most of the data concerning the west and central portions of the Mojave Desert are sketchy. However, it is known that whereas western areas (Antelope Valley and Fremont Valley) received considerable use quite early, the central area, especially that southeast of the Mojave River, received little or no use until the turn of the century. The earliest known use of the western Mojave by livestock was by cattle in the Antelope Valley and the slopes bordering the Sierra Nevadas and by sheep migrating from the San Joaquin Valley to ranges in western Nevada. Use by sheep has continued to be an important economic factor to the present day, with many of the same areas being grazed yearly. Use by cattle has also continued, with the most important ranges continuing to be those skirting the base of the Sierra Nevadas northeast of Tehachapi. Antelope Valley, which was an important cattle range until shortly after 1900 when extensive settlement took place, currently is of little importance, as it contains very little Bureau land.

Lack of permanent water was the principal factor in the slow development in use of the rangeland in the central Mojave. Although intermittent use by

sheep had been possible before 1900, subsequent use was primarily by cattle. Recently, sheep again have become the dominant livestock.

Reports of actual stocking rates for the eastern Colorado Desert are scarce, and to complicate matters informants tend to remember dates of believed initial use much more readily than the average stocking rate. Because of the very nature of the range resource in this locale, many areas were probably used intermittently, causing wide fluctuations in stocking rates from one year to the next. However, an average trend line can be constructed. Cattle composed the more permanent operations (Old Woman Mountains and Turtle Mountains), but sheep undoubtedly played an important role, especially in those areas lacking permanent water. Although extensive use of the interior portions of the eastern Colorado Desert did not occur until 1900, there was probably some prior use along the Colorado River.

The effects of population sprawl and agricultural development have had more effect on the western Colorado than on any other area in the desert. Like the northern and eastern Mojave, the principal use has been by cattle. Much of the use of this region began before 1875, but by 1925 most of the land formerly used for range was withdrawn for agricultural and other domestic ventures. The sand hills, southeast of the Salton Sea, were used until recently as an important source of ephemeral forage. By 1976 only a few areas at the base of the San Bernardino Mountains were still in active use.

Southwestern Mojave and Western Colorado Deserts

The nearness of the San Bernardino Mountains to the north and the numerous mountain chains to the southwest has had an important inpact on the range resources in the western Colorado Desert. Livestock have historically utilized these desert ranges as winter forage, with the main base of operations and summer and fall grazing occurring in the mountains.

Morongo Valley-Rattlesnake Canyon. The rangelands in the vicinity of Whitewater and Rattlesnake Canyons of the southwestern Mojave have the highest elevational range of any area the BLM contracts in the southern portion of CDCA. Because of this broad elevational range, this area has a higher richness and over-all abundance of perennials than most of the ranges to the south. Without exception, the base of the San Bernardino Mountains was listed by all of the informants questioned as being an important cattle producing area before the turn of the century. Some of the individuals who were said to have made extensive use of this area were: Shay and Barker, Swarthout, and possibly Hitchcock. Thompson (1929) says of Old Woman Springs and Johnson Valley which border this area of range: "A number of cattle are grazed in the valley by a company which has headquarters at Old Woman Springs." There was considerable grazing in the Pipes Wash area. In fact, there were often enough cattle tracks to obliterate the road leading to Warrens Well (Thompson 1929). Prior to extensive fencing, cattle were said to have wandered up to the San Bernardinos from as far south as the Anza-Borrego area. This would have been in addition to indigenous cattle, creating heavy pressure on the range resources. There are some old stories of large cattle roundups that occurred near Old Woman Springs. The amassed

herd reportedly was huge. Currently, the Whitewater and Rattlesnake Canyons cattle leases are the only Bureau leases in the southwestern Mojave or western Colorado Desert region.

Coachella Valley. Little is known of past grazing practices in and around the Coachella Valley. Some activity may have continued for a time in the mountains. There was a grazing lease in effect at Rockhouse Canyon until the early 1960s. Areas to the east of the Coachella Valley (Little San Bernardino Mountains) were probably used to some extent by transient livestock operations as winter or spring range. But the scarcity of water and influx of people have ruled against grazing. Currently, a few burros frequent the area.

Anza-Borrego. Documented livestock use of the Anza-Borrego region began about 1875 when individuals moved into McCain Valley and surrounding areas. The canyons of the mountains have been used more frequently than the lower plains. These were used primarily when there was sufficient rainfall to trigger a lush crop of annual plants. Although cattle have been the dominant livestock within the Anza-Borrego Desert, sheep have also utilized the forage. There were about two to three thousand resident head of sheep between the Mexican border and Rattlesnake Canyon. However, additional sheep were brought from the coast to graze in above average rainfall years. J. L. McCain felt there were four to six thousand cattle in the area west of the Salton Sea from the Mexican border to Whitewater Canyon. The largest cattle Company in the area was the Campo Cattle Company, which was at its peak at about the turn of the century. One rancher in particular felt that considerable damage was done to the range during the late 1800s and early 1900s and again about the middle and late 1940s.

Several factors may have affected the quality and quantity of forage in the area. One, was overgrazing, which greatly reduced perennial grass. A second factor was floods during the late 1800s and a subsequent general decline in annual precipitation. According to several, many once productive meadows were reduced to unproductive washes. The general decline in precipitation in the area also had a profound impact. According to several "old timers," most of the now dry canyons had perennial streams running in them at the time of settlement. A current dry cycle is believed to have begun about 1950. An indicator that this might have occurred before settlement is reflected in a story told by Mr. McCain who is well over 80 years old. He said his father told him that he once asked an aged Indian why there weren't any fish in the many running streams. The Indian who could speak only a little English is claimed to have said, "Bye and bye, no water here." This response could be taken to mean that this area was in an above-average rainfall cycle at the time of settlement.

A partial explanation of what has occurred to reduce the carrying capacity of this area may have been given by Mr. McCain himself: "When I asked my old dad, 'How in the hell did you fellas ever run so damn many cattle in this country?' he said, 'Well, I'll tell you, when we came here the whole damn country was wading in bunch grass. And it was like that all across the

desert, even in the mountains.' Well, you've seen it where the cattle haven't eaten it at all."

There were several years of extraordinarily severe weather conditions which affected livestock production. The year 1882 was remembered as having an extremely heavy snowfall; the seven years prior to 1905 were recollected as being very dry; In 1905, there was heavy rainfall as in 1916, 1926, and 1937. The year saw extremely heavy rainfall; its effects are still visible on the lower canyons and desert.

Imperial Valley. Grazing in Imperial Valley goes back to at least the 1880s. A large Miller and Loches Company had vast herds of animals in the Valley. One person said as many as 30,000 head were grazed there at the same time, but this is highly unlikely. Probably not even half this number of animals were on the range at one time. Animals were said to have covered the desert on at least two occasions when the Colorado overflowed during the spring flood season, especially in 1891 and 1905. Except for years of good annual forage production, range use declined as human population increased. Sporadic use along the base of the Chocolate Mountains and the Algodones Dunes continued until the 1960s. Obtaining water for stock has always been a problem in this area, but flooded dry lakes in the Imperial Valley were rumored to have been used as the source of water during these years of abundant forage. One important cattle man in this area was a man named Talmadge, whose stock ranged over an extensive area (Brown 1923). The only other area known to have been used until recent times (1900) was Davies Valley at the California-Mexican border.

East Mojave

The eastern Mojave ranges may be the most historically important in the California Desert, though little has been written about range use.

According to Dennis Casebier, historian and author of several books concerning the eastern Mojave, the first cattle were probably brought into the area by Indians or Spaniards. However, most the stock that fell into the Indians' hands, both horses and cattle, was eaten almost immediately. Undoubtedly, during the days of the Old Spanish Trail and Mojave Road, many animals, principally horses and mules, would have passed through the eastern Mojave. The pressure they exerted on the range would have been restricted primarily to those areas near the trail.

The first horses and cattle kept in the eastern Mojave for domestic purposes were probably those belonging to miners in the Ivanpah and Rock Spring areas. Probably the most important operation, historically, was the Rock Springs Land and Cattle Company. At one time this ranch controlled one-fifth of the total area of the eastern Mojave, with extensive holdings in Nevada.

Pahrump Valley, Silurian Valley, Kingston Range, Clark Mountains. At the northern end of the eastern Mojave is Pahrump Valley. The exact time of settlement is not known. It is known that the Pahrump Ranch located in Nevada at the northern end of the valley was inhabited well before the turn

of the century. Walter C. Mendenhall, writing in Some Desert Watering Places in Southern and Southwestern Nevada, published in 1909 says of the Pahrump Ranch, "Pahrump, one of the oldest settlments in the southern portion of Nevada...is a large ranch, in whose cultivation a number of Indians are employed." Although Mendenhall didn't mention it in his publication, cattle were undoubtedly raised in this vicinity. Cattle production in the southern portion of the valley would have depended on the availability of water. Until recently there was a Bureau lease maintained for the area.

Upper Kingston Valley (currently called Shadow Valley) has been grazed extensively since 1900. One of the famous ranches of the Valley was the Yates Ranch. When David Thompson (1929) passed through the Mojave Desert he had more to say about the cattle in this area than in any other. In describing the ranching activity he said, "No land is farmed in the valley. One cattle company runs several hundred cattle in it....It (precipitation) is sufficient, however, to provide some forage for cattle. Summer grazing is found in the high mountains that border the valley. Nevertheless the number of cattle that the valley will support is rather small, and it is probably already grazed to capacity."

The eastern Mojave was probably at its peak period of cattle production when Thompson came though in about 1920. The Yates ranch was probably its major operation in the valley at this time. It is interesting to note that for the entire desert, Thompson said there were less than 5,000 head of cattle, while records of the Rock Springs Land and Cattle Company of January 1, 1920, show that they alone owned 9,223 cattle.

Currently the Shadow Mountain and Shadow Valley range is leased by the Bureau.

To the west of Shadow Mountain, is Silurian Valley, which has probably been subjected to very little grazing pressure. Thompson (1929) indicated range utilization when he stated that a spring in "Riggs Valley was used for cattle watering," Joe Kennedy of Needles, an old-time rancher familiar with operations in the East Mojave since 1919, stated that the Yates Ranch used to run cattle as far west as Valjean and Silver Dry Lake. There is no recent or current Bureau lease.

Southeast of Silurian Valley, East and West Cronese lakes have probably received sporadic use. When Thompson (1929) visited the area in 1919, he noted, "Several ranches have been established in the valley, but when the writer visited them in December, 1919, all of them were deserted." Currently this area is under a Bureau lease and has been for at least 15 years.

Clark Mountain has been grazed from at least the time that the Yates Ranch first began using it around the turn of the century. According to Mr. Kennedy of Needles, the Yates ranch used the range west of Clark Mountain crest and sometimes the east side. Rock Springs Land and Cattle Company normally used the east side in good years. According to some sources, there may have been some very early use by sheep.

Mesquite Valley apparently was never utilized to any extent for forage because of inadequate water. However, Waring (1920) said of a spring in the valley, "The water is probably contaminated to some extent by seepage from the mud trampled by cattle around the trough."

Ivanpah Valley, Lanfair Valley, New York Mtns., Woods Mtns., Kessler Springs. About 1900 to 1927, this entire area was controlled by one ranch, the Rock Springs Land and Cattle company . Its territory stretched from Ivanpah Dry Lake at the northern end to Goffs at the south and from the Marl Mountains on the west to Searchlight, Nevada, on the east. The Rock Springs Land and Cattle Company was founded in 1894 and was split up in 1927 when one of the original owners died. For an operation of this size to become established required that the range resources be well known and have a considerable amount of good forage. During a summary of the agriculture and range resources of the Mojave Desert, Thompson (1929) mentions the Providence, New York, and Ivanpah Mountains as being "the most extensive cattle range." He estimated that there were 2,000 to 3,000 head in the area. Of Ivanpah Valley he wrote, "A few hundred head of cattle were being grazed in the Valley in 1918. The number of cattle that can be raised, however, is dependent upon the supply of wild grasses, for the soil and water conditions will not permit the cultivation of grazing crops." Shortly after, in 1919, Mr. Kennedy said that a major influx of people began along the river. He said that by the end of 1919 there were probably nearly 4,000 cattle in the Ivanpah area. The next year's drought required many of the animals to be shipped to other areas. Nonetheless, in 1925 there were rumored to be enough animals in the ranges surrounding Government Holes that 1,000 weaner calves were gathered in a week for special shipment. Mr. Kennedy felt that the animals may have been somewhat boarded by favorable rains in the area.

Lanfair Valley was, apparently at one time, one of the best perennial ranges on the desert. This can be verified in part because Lanfair Valley was one of the few places settlers attempted to dry farm on any large scale. Early reports also indicate that "you could stake out a horse and, it would have more than enough to eat for the day." In the fall of 1917, Thompson noted 130 registered voters in the Valley. He also noted numerous wells that were used for watering stock. There is still considerable evidence left of this vain attempt to use this part of the desert for cultivated crops. Unfortunately, this valley is currently in far poorer conditon than it must have been at the turn of the century. Although Lanfair Valley was, and continues to be, one of the best perennial ranges in the desert, the area has, at times, been severely overgrazed, if not recently, then certainly between 1900 and 1940. Further problems with the range were undoubtedly created by farming activities in the desert.

The first stock operations in the lower end of this area probably coincided with the coming of the railroad to Goffs. Before that time there was no market for the animals in the area except for miners and railroad crews laying tracks.

Granite Mountains, Providence Mountains, Devil's Play ground. These mountains within the southern boundaries of the eastern Mojave area, are some of the most visually striking within the region. They have been subjected to some of the heaviest grazing pressure in the desert. It appears that the first person using the Granite Mountains for domestic livestock production was an Indian named Dusty. He was believed to have started grazing operations before 1900. He sold his rights to an Englishman who in turn sold them to Ed Corness. Ed had moved up from less productive range in the Turtle Mountains, down in the east Colorado Desert. Kenneth and Frances Staples bought the water rights from Ed Cornell in 1927 and maintained a herd of approximately 250 to 500 animals in this range until 1960 when they relinquished their base. During the time Patton was practicing maneuvers near Essex, stock numbers were reduced considerably on the adjacent range.

The Dominguez Ranch was an early operation in the Providence Mountains and Mid Hills region. Mr. Kennedy can remember their operation as early as 1921. Since Mr. Kennedy arrived in the area in 1919, it is a safe assumption that livestock operations had been underway for time.

Burros were the biggest single problem for the ranches in this area, although they were a problem throughout the eastern Mojave. Many were rounded up, but many more shot. The situation is best put by Mrs. Staples, "A cowman couldn't stay in the business up there if he didn't kill the burros." She estimated 50 to 100 burros per year were killed in the Granite Mountains/Devil's Playground area. It should be noted that cattle only used the Devil's Playground area in years of good rainfall.

Cady Mountains. Very little is known about grazing in the Cady Mountains. Use was probably more consistent than in the Cronese area to the north. Mrs. Staples said she could remember that it was used some but couldn't specify. According to Bureau records it has been used for the last 15 years. Afton Canyon was probably used quite extensively because of its proximity to permanent water.

Although cattle have been the dominant livestock in the eastern Mojave Desert, sheep have also played an important role in the history of the area. According to Casebier the entire decade of the 1870s was noted for the movement of large sheep herds through the area. Casebier states that perhaps as many as 50,000 sheep crossed the Colorado river at a single point (Hardyville) in 1875. Nearly a century later, sheep were grazed in the Granite Mountains for a brief period with little success because of predators.

Much of the area that was grazed in 1900 is still being grazed. In fact, the eastern Mojave Desert is still one of the most productive perennial range sites in the Mojave Desert. Its value as a perennial range is derived more from its valuable browse species than from perennial grasses which may have been predominant in its pristine condition.

Northern Mojave, Inyo County

The northern apex of the CDCA includes some of the most stable range operations in the desert. Operations in the Fishlake Valley were especially stable, because the range type there is not as variable as some, and the ranches could produce supplemental feed by irrigation on private lands.

The central and southwest ranges of this large area are both interesting and significant from a desert-wide perspective. After 100 years of active grazing, the ranges continue to be a valuable source of forage. It should be noted that only about one-half of the area is Bureau land. There is some private land, but the largest owner is the U.S. Government, controlling Death Valley National Monument and China Lake Naval Weapons Center.

The northern Mojave range can most easily be divided into a northern and southern half, with the division line drawn just north of the Hunter Mountains. Grazing activities north of the line would be associated more with activities in Nevada and the Bishop Resource Area, while those south of the line would be associated more with the Ridgecrest Resource Area.

Fishlake Valley. Fishlake Valley, partially in Nevada, was probably not utilized as early as some of the more southern ranges. Undoubtedly there was grazing activity prior to 1900, as nearby Deep Springs Valley had a permanent ranch by the middle 1870s. The 1940s may have brought an increase in the range and distribution of cattle in this area after well drilling. Overgrazing was inevitable, especially at the time Lida Livestock Company was attempting to control the area by moving cattle into ranges already stocked by other ranches. Such activities were prevalent before Government management; the main idea was to force smaller outfits out of business. Added to this infrequent but severe pressure on the range were the impacts of numerous bands of sheep that annually passed through the area from near the turn of the century until about 1935 to 38.

Old-timers estimate that about 600 animals used the valley as winter range, with fewer ramaining during the summer. Ranchers preferred to graze their animals in the mountains to take advantage of the forage. Currently the area can be considered quite stable, as there is water for irrigation of supplemental forage on private lands.

Eureka Valley. Although the northern end of Eureka Valley is currently under Bureau lease, use has been infrequent because of the lack of watering facilities. Cattle normally use this area only during years of good rainfall and then only as far south as the road across the valley floor.

Deep Springs Valley. Deep Springs Valley, located southwest of Fishlake Valley, has had, according to Deep Springs College, continuous grazing since the middle 1870s when a Mr. Stewart first settled there. The college currently has a Bureau lease. Officials at the college thought that from 400 to 750 head of cattle annually used the area in the past, primarily as a winter range. A long-time resident of the area, David Scott, thought that

the average stocking rate would have been closer to 300 animals. Mr. Scott's grandfather was one of the early ranchers, settling there around 1909.

The Fishlake-Deep Springs area usually has severe winters with temperatures below 0°F and snow depth building to make forage use difficult. According to a resident of Deep Springs Valley, 1933, 1949, and 1952 were years in which many cattle died in Deep Springs Valley. Fishlake Valley did not sustain losses as great because of the availability of supplemental forage.

Saline Valley. The area adjacent to and including the present Waucoba allotment had considerably more use in the past than today. Little and Big Cowhorn Valleys, located near the northwest corner of the Waucoba allotment, have received very spotty use. Known or suspected dates of significant grazing were around 1925 and 1946. The portion of the allotment that extends down into the Saline Valley was used by a cattleman named Henry Miller, before the turn of the century. Surprisingly, the Saline Valley floor, around the dunes and up to Willow Creek, had considerable domestic livestock use. Beginning in the 1890s and lasting until the 1950s, an Indian named Johnny Hunter is said to have run about 40 brood mares year-round.

Hunter Mountain. At the south end of Saline Valley lies Hunter Mountain which has had continuous use for as long as any area in the desert. Mr. William Lyle Hunter, a miner and cattleman, settled in 1868, raising cattle, horses, and mules. The Hunter family have been the sole lessees since that time. A reduction in land base available for range usage occurred when Death Valley National Monument was set aside in the 1930s. Although it was illegal after the establishment of the park, grazing of horses, burros, and weaner calves continued in Emigrant and Cottonwood Canyons and Hidden Valley. Park officials eventually stopped the practice. As the land base was reduced and some important forage species decreased because of overuse and possible climatic changes, the number of animals was culled from the 400 to 500 animals that utilized this area prior to the park withdrawal. A maximum of about 1,000 animals used the area during the early 1900s. A severe drought was reported in the 1880s. During the winter of 1949-50, a severe freeze killed many cattle. The drought of 1962-63 did not affect the area to a considerable degree.

Burros have also had a severe impact on grazing in the area. It appears that burros in the Saline valley area may have had different origins. Most of the burros on Hunter Mountain apparently come from stock owned by Mr. Hunter. These purebred animals came from the Teagus ranch in the San Joaquin valley. They were released when the State contested Mr. Hunter's ownership. Most of the burros on the Saline Valley floor probably came from a herd that was brought into the valley by a college for a brief two- or three-year stay during poor feed conditions in Owens Valley. This was supposed to have occurred some time during the 1930s. Approximately 200 to 300 animals were brought into the valley and were to be removed the following year. It seems it took them two years to complete the roundup, and undoubtedly some animals were not captured.

Coso. The Coso Range area, south of Hunter Mountain, has been used for well over 100 years, beginning about 1865. A sheepman, Mr. Dominguez, was one of the earliest. About 1880 he entered into a partnership with a cattleman named Reynolds, who later was a supervisor of Inyo County. They ran cattle in this area until the early 1900s. After Mr. Dominguez died, Mr. Hunter ran about 750 to 1000 head on the range, with Mr. Reynolds and several others. The very northen end of this area, Cactus and McCloud Flats, was used primarily by horses from the early 1900s until the 1950s. Approximately 100 animals used this pasturage for a six-month grazing season. Joshua and Upper Centennial Flats, in the same area, were used from about 1885 to 1900, but little since. Angora goats were reported as having been herded in the area below Silver Mountain about 1925.

Panamint Valley. Panamint Valley, east of the Coso unit, has had little grazing activity compared to more productive sites in the northern Mojave. The range above Searles Lake in the Homewood Canyon area was used as early as 1915 by a man named Shuey. Grazing continued until at least 1960, with use being terminated because of management problems involving private holdings. North and South Lakes in the Panamint Valley were used in the late 1940s, but competition with burros caused the eventual withdrawal of cattle. There are reports that some type of farming or agricultural activity may have occurred in the past. Burros are currently making heavy use of most of the forage in the area.

Amargosa and Chicago Valleys. Litttle information on grazing history has been collected for this area. It is known that there has been livestock grazing in the Chicago Valley for many years, undoubtedly more widespread than now. Amargosa Valley, near the Nevada Border has been grazed since the turn of the century.

West and Central Mojave

The western and central regions of the Mojave contain some of the best annual range in the desert in areas such as the Antelope Valley. Though the principal forage plants in this region are desert ephemerals, these ranges are not as stable as some. The absence or scarcity of dependable water has also been a limiting factor. Two large military bases, Camp Irwin and Edwards Air Force Base, are within the central and western Mojave. Although sheep have used this part of the desert for nearly a century, only within the last 40 years have such areas as those north of Barstow been used primarily by sheep.

Antelope and Fremont Valleys. Antelope Valley was one of the first areas to have been extensively grazed, starting with sheep in the early 1860s. They were transient herds that migrated from the San Joaquin Valley. When there were substantial quantities of forage, the sheep ranged as far as or beyond Barstow before moving up the Owens Valley. When forage was poor, the sheep went directly toward Owens Valley, possibly following a route approximating that used today. Cattle grazing was more restricted to the foothills and lower reaches of the Sierra Nevada Ranges. There are reports of extremely

large cattle operations that once used desert ranges. One was reported operating from headquarters near Koehn Lake in Fremont Valley.

When David Thompson of the USGS visited the Antelope Valley-Fremont Valley area in 1918-1920, he mentioned numerous ranches. He said, "In the early days the land in the central part of the valley was devoted principally to cattle raising." (Thompson 1929) Fremont Valley, north of Antelope Valley, was also a major stock producing area, with the center near the town of Cantil. In Gold Gamble by Roberta Starry, mention is made of the movement of cattle owned by a prominent "cattle baron" named William Landers of the Kern River. The cattle were being moved from the Kern River to Kane Springs (Kane Dry Lake?) to take advantage of the heavy growth found there. The desert may have been used regularly as a winter and spring range by persons whose base was in the mountains. That theory is supported by the Soil Survey of the Lancaster Area, California, conducted in 1922, which stated in its historic section "During the eighties it (Antelope Valley) was used for winter and spring grazing of cattle and other range stock wiich were moved into the surrounding mountains during the warm summer months." In 1897-1899, a severe drought may have caused a temporary drop in stocking levels.

Indian Wells, Inyokern, and Rose Valleys. North of Fremont Valley is Indian Wells Valley. In 1920 Thompson wrote of Indian Wells Valley: "Agriculture, including horticulture and cattle raising is practically the only activity of the valley." He also mentioned that in 1919, seventy-five carloads of cattle were shipped from Inyokern. Many of these cattle may have come from he Kern River area, outside the area.

Rose Valley has a history of grazing that begins in the latter part of the 19th Century when an important pioneer of the area, John Lubken, first settled there. Use of the valley has continued.

Searles Valley, Panamint Valley, Pilot Knob Valley. Very little livestock activity has been associated with this area. The lower reaches of Searles Valley are currently under Bureau lease, but it is doubtful if the range was used much before dependable stock watering facilities were developed. Thompson (1929) stated that there was an absence of agriculture in all three valleys.

Cuddeback Lake, Superior Valley, Harper Valley. Grazing by domestic livestock has been a part of this range for more than 100 years. Historic Black's Ranch near Harper Lake, was verified by tax records as being occupied in 1875. Use of the range is believed to have occurred at least 10 years prior and was interrupted until late 1930s when drought conditions forced transfer of many animals to the San Bernardino Mountains. Black's stock is reported ranging as far east as Baker--doubtful considering water shortages in the eastern ranges. At that time, 2,000 cattle were being run by this ranch (Keeling 1976). Both Cuddeback and Superior Valleys experienced an influx of homesteaders around 1910 to 1915 which is certain to have had some impact on grazing operations. In 1917, Thompson noted of Harper Valley, "Except for stock raising and irrigation farming, there are no industrial activities in

the area." In the Superior Valley note is made of numerous homesteader shacks and three springs that were used for cattle watering.

Langford Valley. Langford Valley, east of Superior Valley, was a marginal livestock producing area at the time Thompson visited. He wrote, "A few cattle are grazing occasionally," and noted, "This well apparently is used to water cattle, for two watering troughs stand nearby." Currently the area is under control of Fort Irwin and is not grazed.

Shadow Mountain, Stoddard Mountain, Ord Mountain. Very little is known about the early grazing history of this locale. There is reason to believe that most of the range was little used until after the turn of the century. It appears that a lack of stock water was a severe limiting factor on the use of the range. In 1915 the Willises moved to Ord Mountain and began developing stock-watering facilities. They remained there only 10 years but did open the range for use by ranchers who came later. Ord Mountain has been used on and off until at least the middle 1960s. Newberry Mountain has been used since at least the turn of the century. Tom Stewart, range conservationist of the Riverside area from about 1960 to 1972, felt that Newberry Mountain was grazed every year from its first use. Horses may have been the main livestock in the Granite Mountains, as several individuals remember a large horse ranch. Stoddard Valley apparently was not used much until Lee Berry began operations there in 1940. After development of water sources, he was able to graze a reported 3,000 head at one time. Ord Mountain was a separate range and was also grazed, but the stocking rate was not as high.

Shadow Mountain and surrounding areas have been grazed for at least the last 20 years and probably before. Information on the extent is lacking. Grazing possibly occurred southwest of Shadow Mountain but is not yet verified.

Lucerne and Johnson Valleys. Both Lucerne and Johnson valleys were widely used by early cattlemen. There are a few remnants of early operations in Johnson Valley. David Thompson made references to ranches following his trip. Even in 1920 there was considerable irrigated alfalfa pasture. Tom Stewart also singled out this area as being important range before social pressures forced a change in use. The Box J Ranch was one of the most important ranches in the area.

SUMMARY

In summary, like most of the California Desert, both the range base and livestock numbers have decreased. The decrease can be attributed to overuse, encroachment of civilization, and a possible climatic shift toward increasing dryness. The heaviest use most likely occurred around 1900, with increased activity probably occurring between the two World Wars and declining thereafter to the present.

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Part 2

Carrying Capacity and Forage Allocation Methodology -- Grazing Allotments

RENEWABLE FORAGE PRODUCTION

The carrying capacity tabulation for each allotment was documented on the allotment write-up form (Example 1). Listed on the form (III) is the total standing vegetative biomass for each allotment, total production differentiated as forage and non-forage, and total renewable forage production as estimated by the multistage sampling remote sensing survey (See Part 3 of this appendix).

Total renewable forage production was extracted from the total production values through the evaluation of each plant species in terms of its proper use by livestock. (Part 8 lists the proper use factors which were employed). The figure represents the amount of annual production by perennial forage plants which could be removed by livestock without impairment to the plants (sustained yield).

The renewable livestock forage values were converted to Animal Unit Months (AUMs) by dividing the results by 450 kilograms (990 lbs.) per AUM (Part 9 of this appendix).

SUITABILITY AND COVER ADJUSTMENTS

This information is developed by Item V of Example 1.

Cover

Point transects on aerial photographs tend to overestimate cover estimates as compared to actual ground transects. This difference was calculated to be approximately 10 percent and was used as an adjustment factor.

Slope Exclusion

Digitized slope classes were used to identify excessively steep slopes (50% or greater slope) which are considered unsuitable for grazing. Actual topography map measurements, when compared to digitized slope areas, indicated that the 0-25% digitized slope class was the average in most slopes considered to be within or slightly above the 0-50% slope suitability range.

Low Production

Areas producing less than 20 kg/ha (31 lbs./ac.) of forage were excluded from capacity estimates because of negligible use by livestock.

Unavailability of Water

Known areas four miles or more from water were excluded since they were considered to be out of range of livestock.

Summary

The resulting value which is the Adjusted Renewable Forage Production (III,A,4) was used as the recommended carrying capacity in IV. Carrying capacity is considered as the level of use that could take place without increase or decrease in range production and associated condition over a period of time.

FORAGE ALLOCATION TO LIVESTOCK

This information is developed by Item IV of Example 1. A utilization level which did not exceed 50 percent of use on forage plants was used to determine carrying capacity (Proper Use Factors in Part 8). This level essentially provides for no change in range production and condition, so survey estimates are further adjusted in relation to their present condition. In order to initiate a response to improved range condition, survey estimates on allotments rated as poor or fair condition were reduced by 50 percent and 25 percent, respectively. (This adjustment will result in correspondingly less utilization of forage plants, allowing recovery of the plants to occur. Recent literature on range management has stated that adjustments in stocking rates are effective in promoting range condition improvement.)

Carrying capacity estimates were compared (VII) to existing use by livestock in relation to the following factors to determine recommended livestock allocation.

1. Present range condition.
2. Existing wild horse and burro use.
3. Expected wild horse and burro adjustments.
4. Existing wildlife use and allocation.
5. Historical use (VI).

From the value developed in IV, forage allocations were made. The allocations to wildlife (Part 7 of this appendix) were first deducted. This left the estimated forage available for livestock, or where wild horse and burro herds occurred, the estimated capacity to be allocated among wild horses and burros and livestock (Appendix XII).

In all cases, no increase from existing authorized use on perennial or ephemeral/perennial allotments was made. When existing livestock authorizations are higher than the adjusted carrying capacity, the allocation to livestock was lowered to that level.

Increases above allocation levels in the Livestock Grazing Element will not be recommended until monitoring studies verify that an increase is warranted. Additional perennial forage identified will be allocated through the same process used in this plan. Ephemeral forage will be allocated through the procedures outlined in Part 5.

ACREAGE AND BOUNDARY ADJUSTMENTS

Allotment boundaries shown in the Livestock Grazing Element map are the existing situation. New proposed allotments or additions to existing allotments are also designated on the map and are listed in Table G1 of the element. These boundaries were digitized during the multistage sampling remote sensing survey for acreage estimates. The digitized acreage was used on most allotments and compared to case-file records. If accuracy was not considered satisfactory, actual acreage counts were made. Acreages for small allotments or those with scattered public land patterns were from case-file records. Actual acreage counts were made for the new proposed allotments and extensions.

Example 1
ALLOTMENT WRITE-UP

I. Allotment - Name: West Hills Public Acreage: 59,580 Ac.

II. Leases (Number of Allotment): 1

III. Pertinent Information Related to Grazing Allotment Carrying Capacity

A. Remote Sensing Survey 1976-1980

1. Total Standing Vegetative Biomass: 139,427,936 kg

2. Total Production
   a. Forage _____ kg
   b. Non-Forage _____ kg
   c. Total _____ kg

3. Total Renewable Forage Production

(All slope Classes 1978-79 3,323,065kg 7,384AUM

4. Adjusted Renewable Forage Production

(Suitability & wet-dry year variation adjustment)10% 1,923,480kg 4,274AUM

B. Previous Livestock Carrying Capacity Determinations

	Name - Method		Year	Results
1.	Coso	Ocular, recon.	1966	2,431
2.	Range	Ocular, recon.	1971	2,843

IV. Recommended Carrying Capacity 1,923,480kg 4,274AUM

A. Condition Rating Exclusion % 25

Condition Fair 480,870 kg 1,069AUM

B. Wildlife Allocation 63AUM

C. Wild Horse and Burro Allocation 40AUM

D. Available Livestock Allocation 3,102AUM

E. Recommended Livestock Allocation 1,105AUM

Example 1 (Continued)

V. Forage Production Determination from Remote Sensing Survey 1976-1979.

A. Acreage Corrections

1. Draft Acreage 55,210

2. Acreage Adjustments Rationale None - JPL used

3. Total Acres in Allotment 59,580

B. Renewable Forage Production by Digitized Slope Class

1.	0-25%	2,959,305 kg	6,576AUM
2.	26 - 50%	343,568 kg	
3.	> 50%	20,191 kg	
	TOTAL	3,323,064 kg	7,384AUM

C. Slope Exclusion 26 - 100

D. Water Exclusions % 25

E. Cover adjustment from low level photos % 10

F. Other Exclusions % 0

G. Low production spectral class exclusion 0 AUM

H. Adjusted Renewable Forage Production (Suitability Correction) 1,923,480 kg 4,274AUM

Example 1 (Continued)

VI. Historical Information

A. 1979 Authorized Use

1. Ephemeral: _____ AUM

2. Perennial

a. Authorized 1,104 AUM

b. Exchange of Use _____ AUM

c. Non-Use _____ AUM

d. Suspended Non-Use _____ AUM

B. 3 - 5 Year Average Authorized Use

	Perennial	Ephemeral
1975	1104	
1976	1104	
1978	1104	
1979	1104	
Average	1104	

C. Ranchers' Opinion On Use 1,500 AUM

Year: 1978 questionnaire

D. Other

Source and Year:

VII. Rationale for

A. Allocation Draft = (NA) 1,105 (B) 896

A major reduction in burros will help improve allotment condition, thus maintaining stocking rate and monitoring for condition increase by utilization. A future increase may occur. Majority of use now being made by excess wild burros.

B. Difference from Draft Plan Carrying Capacity (CC) and Why

(Draft CC = 2,520) (Plan CC = 4,274)

Landsat information more accurate than past survey used for basis of carrying capacity.

EXAMPLE OF ALLOTMENT CHANGED FROM PERENNIAL TO EPHEMERAL/PERENNIAL

If an allotment had historically been licensed at 10,000 AUMs under a perennial license but forage survey measurements of perennial forage show approximately 5,000 AUMs available for livestock, the operators license will be adjusted downward to 5,000 AUMs. This will account for use made in the portions of the allotment which consist primarily of perennial forage plants or use made in perennial/ephemeral forage areas when ephemeral forage is not making significant production.

When significant ephemeral production occurs, grazing use above the 5,000 AUMs licensed will be allowed under the ephemeral authorization. If 6,000 AUMs of ephemeral forage are produced, then 11,000 AUMs of use could be made on the allotment. If 3,000 AUMs of ephemeral forage are produced, then 8,000 AUMs of total use could be made on the allotment. Ephemeral use occurs primarily, but is not limited to, the spring grazing season. The determination of the ephemeral forage will be conducted as explained in the section on ephemeral range. This example also illustrates that caution should be used when comparing proposed livestock allocations of ephemeral/perennial allotments to their existing preference since the present preference may represent use made of both perennial and ephemeral forage. The example shows that depending on the ephemeral protection for any given year, total authorized use may be higher or lower than existing authorized use.

It is important that the ephemeral use period be specified and that close monitoring be done to determine when livestock leave the ephemeral forage and resume grazing on perennial forage. Actual use will not exceed 50 percent of the perennial key species. The flexibility for each allotment will be detailed in the Allotment Management Plan. If authorized ephemeral use causes perennial forage species to receive 50 percent utilization earlier than anticipated, livestock will be adjusted accordingly.

Part 3

Multistage Vegetation Inventory of the CDCA

The vegetation of the CDCA was inventoried and classified on both a qualitative and quantitative basis. The qualitative approach yielded a generalized vegetation map indicating the distribution of vegetation and plant community types. The quantitative approach provided detailed biomass and production estimates for selected management units, particularly areas leased for livestock grazing.

Data for the inventory was collected using a multistage sampling scheme. This approach involved the meshing of data from:

1. Landsat (an earth orbiting satellite that measures the reflectance of solar energy in digital format, photo element size 1.5 acres.

2. Resource aerial photography coverage, scale 1:30,000, for establishing representative study sites for current and future reference.

3. Low-level aerial photo transects (scale 1:1,000 at the designated sites) interpreted in terms of cover, height, and volume by plant species.

4. Ground measurements of plant cover, volume, biomass, and production by species along with evaluations of the level of grazing use which palatable plant species can tolerate while still maintaining a sustained yield in a plant community setting.

The satellite reflectance data from the entire CDCA was classified into 100 classes which were further clustered into 28 classes. These classifications were meshed with the air photo ground measurements to give biomass and production values by reflectance class. The values were related to geographically delimited management units, e.g., livestock grazing allotments, through computer digitization of the map locations.

The amount of frequency of each reflectance class from each management unit (grazing allotment, burro management area, etc.) could thus be expressed in terms of biomass and production. The production values were further refined in terms of forage and nonforage from a livestock perspective. The forage component was also viewed in terms of the amount of production available for grazing in a sustained yield-proper use framework.

A more detailed report discussing the multistage vegetation inventory, classification, and allocation process is available at the California Desert District office.

Part 4

DRAFT

FINAL DECISION ON GRAZING

DECISION July 3, 1980

PERENNIAL ALLOTMENTS

1. Fish Lake Valley

   Wildlife Conflict - Pallid kangaroo mouse - species of limited distribution.

   Staff Recommendation - Develop AMP and monitor. Wildlife needs data on what the mice eat in terms of potential conflict with grazing. 52 AUMs.

   Decision - Agree with recommendation.

2. Bar 99

   Wildlife Conflict - Pallid kangaroo mouse (same as #1)

   Staff Recommendation - Develop AMP and monitor. Increased AUMs may be justified later. 307 AUMs.

   Decision - Agree with recommendation.

3. Deep Springs

   Wildlife Conflict - Black toad.

   Staff Recommendation - Establish ACEC for the black toad habitat and coordinate ACEC with AMP. 1,064 AUMs.

   Decision - Agree with recommendation.

4. Last Chance

   Wildlife Conflict - Bighorn sheep

   Staff Recommendation - AMP and HMP designed to pipe water down from Last Chance Spring for livestock and leave spring for bighorn sheep. Eliminate burros. 3,055 AUMs.

   Decision - Eliminate livestock from the mountains through herding or fencing. Pipe water to flats. Eliminate burros.

5. Oasis Ranch

Wildlife Conflict - Cottonwood Creek wildlife habitat.

Staff Recommendation - Establish exclosure at Cottonwood Creek to protect riparian habitat and monitor. 675 AUMs.

Decision - Recommendation accepted. Develop AMP with Cottonwood Creek riparian areas protected.

6. South Oasis

Wildlife Conflict - None.

Staff Recommendation - No specific conditions for wildlife are recommended. 480 AUMs.

Decision - Recommendation accepted.

7. Darwin

Wildlife Conflict - Control burros in Darwin Canyon.

Staff Recommendation - Control burro activity in Darwin Canyon. 75 AUMs for horses' use.

Decision - Recommendation accepted.

8. Hunter Mountain

Wildlife Conflict - Riparian areas, Inyo bighorn herd.

Staff Recommendation - Eliminate cattle from Bighorn area by the redistribution of water to cattle at lower elevation out on the Lee Flats part of the allotment. 1,105 AUMs.

Decision - Eliminate burros. Establish as an objective: Maintain and enhance bighorn herd. The AMP will seek to establish a level of livestock use compatible with this objective.

9. Lacey/Cactus/McCloud

Wildlife Conflict - Bighorn, Inyo brown towhee

Staff Recommendation - Eliminate livestock from bighorn sheep range and protect springs within the Inyo brown towhee habitat. Also consider protection of the towhee wintering areas in designing grazing systems in the AMP for this allotment.

Decision - Reduce burros. Establish AMP with Navy (land on the Naval Weapons Center) - give the AMP second priority. Include in AMP objectives: "Protect towhee wintering area."

10. Olancha Common

Wildlife Conflict - Mohave ground squirrel.

Staff Recommendation - Permit summer use at 700 AUMs and give the AMP low priority.

Decision - Recommendation accepted.

11. Tunawee Common

Wildlife Conflict - Mohave ground squirrel.

Staff Recommendation - 1,869 AUMs and monitor use; if no improvement in range condition then lower use.

Decision - Recommendation accepted.

16. Oak Creek (minor allotment 160 acres - 16 AUM accepted).

17. Rudnick

Wildlife Conflict - Riparian areas, Sage, Cow Heaven, Horse and Upper Dove Canyons.

Staff Recommendation - Substantial reduction in AUMs over current authorization. Develop exclosures in the critical riparian portion of the canyons. Give priority to road designation in this area. This AMP will be given highest priority. Critical canyons will be monitored.

Decision - Recommendation accepted. Aqueduct fence should be ephemeral boundary.

18. Warren (small allotment only 584 acres).

19. Walker Pass

Wildlife Conflict - Critical riparian area and potential salamander habitat, eagle habitat.

Staff Recommendation - Fence riparian area in Indian Wells and Sand Canyons. Reduce AUMs for grazing. Establish exclosures and monitor. Manage recreational use - designate camping and parking areas.

Decision - Accept recommendation. (third priority for AMP).

20. Pahrump Valley

Wildlife Conflict - None identified.

Staff Recommendation - Coordinate with Las Vegas BLM office a possible boundary adjustment (current boundary not definable). 550 AUMs as upper limit.

Decision - establish as an objective the protection of the Nopah bighorn sheep herd from grazing of cattle during late winter and spring.

21. Hansen Common

Wildlife Conflict - None identified.

Staff Recommendation - 354 AUMs and program for monitoring.

Decision - Accept recommendation.

22. Harper Dry Lake

Wildlife Conflict - Marsh ACEC proposed important riparian area.

Staff Recommendation - 406 perennial AUMs. Construct an exclosure to determine effects of grazing on tortoise habitat.

Decision - Accept recommendation.

35. Newberry/ORD

Wildlife Conflict - Raptors - need for range improvements - water distribution.

Staff Recommendation - 773 AUMs, monitor for improvement in range condition and establish exclosure as part of monitoring system.

Decision - Agree with recommendation.

36. Rattlesnake Canyon

Wildlife Conflict - Possible bighorn sheep reintroduction.

43. Granite Mountain

Because Kelso Dunes are unique, no preference will be given for use of the perennial forage, but during the Allotment Management Plan development, criteria will be established to determine what the livestock use will be. Objectives of the two programs will be meshed so that unique resources will be protected and managed.

46. Kessler Springs (Ivanpah Valley portion)

Wildlife Conflict - Highly crucial tortoise habitat.

Decision - Establish an objective in the AMP to maintain and enhance the critical tortoise habitat of the Ivanpah Valley. Grazing systems will consider grazing deferment in the spring in order to meet this objective.

47. Lanfair Valley

Wildlife Conflict - Bighorn sheep; highly crucial tortoise habitat.

Decision - (The bighorn sheep conflict is addressed in the over-all approach to the management of bighorn habitat in the East Mojave area).

Tortoise habitat - Establish an objective in the AMP to maintain and enhance the highly crucial tortoise habitat located in the southerly portion of the allotment. Grazing systems will consider grazing deferment in the spring in order to meet this objective.

52. Jean Lake

Wildlife Conflict - Tortoise, highly crucial habitat.

Staff Recommendation - Limit AUM to 310 and monitor the tortoise areas.

Decision - Agree with recommendation.

54. Lazy Daisy

Wildlife Conflict - Bighorn sheep and critical tortoise habitat.

Staff Recommendation - Reduce the allotment to ephemeral range only and limit grazing in the lower elevations away from the highly crucial tortoise habitat.

Decision - Agree with recommendation.

CONFLICT RESOLUTIONS
FOR BIGHORN SHEEP

For the entire California Desert Conservation Area there has been established a goal of "no diminution of both Nelson and Peninsular bighorn sheep." This means that:

a) In some areas with the best chance of success, management programs will be undertaken to increase numbers.

b) In some areas ranges will be managed to increase numbers, but the short-term goal will be to achieve stabilized herd numbers while concurrently determining what the herd numbers actually are and if in fact the present herd is viable.

c) There are a few isolated herds which are not viable because of resource conflicts and past land-use decisions. The population of these herds probably will not be perpetuated. These herds should be monitored. If decline continues, the BLM will review with California Department of Fish and Game the possibilities of relocation or reintroduction. The following herds will be monitored for this purpose: Cady Mountains, Argus Mountains, Palens, Granites.

The above statements are based on the following findings:

1. In the opinion of California Fish and Game, livestock should not be allowed to graze within important bighorn sheep range.

2. In the East Mojave livestock allotments, the effect of eliminating summer grazing from bighorn permanent and seasonal range will severely limit a number of operations.

3. It has not been determined what constitutes a viable herd of bighorn sheep for maintenance or increase in numbers. Minimum herd size and contiguous relationships are unknown.

4. The exact nature of the relationship or impact of cattle on bighorn sheep is not fully known. There are overlaps in diet and some competion for space, particularly around water. But the full degree of competition is not known, particularly as it relates to the CDCA. In order to understand these relationships better, a three to five-year research program is encouraged.

Based upon the goals and findings outlined above, the following measures for the management of cattle ranges in bighorn sheep habitat will be implemented:

1. The allotments south of I-40 shall be managed to maximize sheep populations. The conflicts are less here, and the goal has the greatest chance for achievement. This means that the Lazy Daisy

lease shall be converted to ephemeral with no grazing permitted in the bighorn sheep range in the Old Woman Mountains. No authorization shall be permitted in proposed Allotment #61 - Chemehuevi. This should permit free drift of sheep among the mountain ranges and exchange of rams among the herds.

2. Proposed Lease #68 - Granite Mountain Annex will not be used by cattle. The bighorn sheep herds are small in these ranges, perhaps below viable numbers unless there is movement to other mountain ranges. The BLM will not, in this instance, introduce a factor (grazing) which could further reduce herd viability.

3. The Kelso-Old Dad herd is thought to be increasing. The proposed Lease #72 will not be added to any existing lease or authorization. This herd will be studied over the next three to five years to determine what factors are present which have allowed it to increase.

4. The remaining areas in the East Mojave Region (the area between I-40 and the Inyo-San Bernardino County line) have cattle and bighorn sheep in the same areas. Precise areas of overlap are not fully known, nor are impacts of possible competition for both forage and space fully understood. In the short term (3-5 years) these ranges shall be managed with a goal of stabilizing bighorn sheep numbers while management learns more about herd viability, factors of competition and methods to improve range condition. In order to achieve this short-term objective the following measures will be taken:

   a) In developing forage allocations for cattle AUMs in areas exceeding 50 percent slope will not be included. Allocate available forage for bighorn sheep at 200 percent of their estimated needs. This will allow for increase in herd numbers as well as provide for lower utilization in joint use range.

   b) In designing grazing systems for cattle as part of the AMP program:

      Adopt significant forage species for bighorn sheep as the key species around which the grazing formula will be developed. Consider year-long rest of significant parts of the joint use range (bighorn sheep critical range/cattle summer range) in the grazing formula. The goal of this will be to improve vigor and reproduction of plant species upon which both cattle and bighorn sheep may be dependent.

   d) Determine, over the next three years, the actual number of bighorn sheep and their trend.

   e) Where problems are found to occur, new or existing range improvements shall be designed or modified to reduce competition

between sheep and cattle for both forage and space. This will particularly involve water developments and AMP implementation projects.

5. With the East Mojave Region, the following long-term measure will be taken:

   a) Establish a formal monitoring system for all allotments in FY1981. The goal will be to determine long-range condition and trend for both the areas of overlapping use as well as trend on bighorn sheep numbers. If, after five years, sheep populations are declining and data indicate it is the result of cattle/sheep competition (rather than disease or other factors) AMPs will be revised to establish more stringent requirements for cattle grazing.

   b) Continue to recommend adoption and organization of the East Mojave Region Range Stewardship program under the provision of the 1978 Public Rangeland Improvement Act. The goals of this program shall be:

      To bring the widest array of talent and input together to design range-management programs.

      To formalize mutual consultation among ranchers, wildlife interests and researchers and to formalize a continuing process for evaluation of ranges and impacts.

6. Should any of the above stipulations prove to be of no value in increasing bighorn herds in the desert, it will be dropped at that time. Also, should bighorn herds continue to decline even with these protection measures, a reevaluation on a case-by-case basis will be made to determine the need for further restrictions on livestock.

Table XIII-4-1

EPHEMERAL SHEEP GUIDELINES FOR DESERT TORTOISE HABITAT

	Highly Crucial Habitat	Crucial Habitat
Objective:	Maximum protection to tortoise habitat: Limit sheep grazing. Tortoise habitat takes priority over grazing.	Protect tortoise habitat consistent with sheep grazing. Establish a balanced protection of habitat and grazing.
Livestock Turnout: BLM team of range/ wildlife specialists in consultation with operator will determine range readiness.	At a minimum there will be 350 lbs/acre production prior to turnout for livestock.	At minimum there will be 200 lbs/acre produced prior to turnout for livestock.
Ensure forage availability for tortoises:	Field monitoring of livestock use will be conducted to ensure that a minimum of 350 pounds will be maintained during the spring growing period.	Field monitoring of livestock use will be conducted to ensure that a minimum of 200 pounds will be maintained during the spring growing period.
Number of grazing passes per season:	To avoid trampling, limit sheep grazing to one pass over the ground per season and encourage sheep to be loosely herded.	

Table XIII-4-1

EPHEMERAL SHEEP GUIDELINES FOR DESERT TORTOISE HABITAT

	Highly Crucial Habitat	Crucial Habitat
Bedding and Watering:	In designated areas only.	The goal will be to locate and designate the sensitive areas.
Research:	During the next 5 years, studies will be undertaken to determine whether the 200 lbs/acre and 350 lbs/acre turnout levels are adequate or inadequate to protect and manage the vegetative and wildlife resources. Adjustments may be made in the poundage per acre turnout based on these studies.	

Part 5

Ephemeral Allocation Process

HISTORICAL

Allocations have been made in the past on the basis of (a) ocular reconnaissance and (b) the professional judgment of BLM range personnel.

There has been no minimum value set (in pounds of dry weight annual vegetation per acre) which must be reached prior to the authorization of grazing. Livestock operators were not likely to submit applications for utilization of ephemeral range in years of poor production. For those years in which applications were submitted, these applications were usually approved with stipulations as to season of use and number of livestock. Therefore the actions of livestock operators have been a factor in past allocations of annual forage.

The California Desert Plan Draft Environmental Impact Statement (page 200) indicates that the average amount of annual production utilized by livestock in 1978, a fair year, for all allotments was 27 pounds per acre. This figure did not, however, take into consideration those areas in allotments which were unsuitable for grazing.

Ephemeral Allocation Process (Draft Plan recommendations and rationale)

The allocation process set down in the Draft California Desert Plan for ephemeral range and for the ephemeral portion of ephemeral/perennial range sets a minumum annual production level of 200 pounds of dry weight vegetation per acre before turnout of livestock is permitted. This level of 200 pounds per acre was to be maintained throughout the growing season. When annual production is low, the possibility increases that livestock grazing may adversely impact certain wildlife species. The 200 pounds per acre restriction was developed as a means of ensuring adequate forage for wildlife, especially the desert tortoise. Another consideration in this restriction was to help ensure that the scenic quality of the desert (e.g., wildflower displays) would not be impaired as a result of livestock grazing.

Final Plan and Restrictions and Rationale

The final plan will not change from the Draft Plan in that the minimum production and maintenance level of 200 pounds per acre of dry weight annual vegetation will apply.

Some background information regarding annual production in southwestern deserts is necessary to understand the minimum level of production set in the Desert Plan. In very dry years, ephemeral production can be effectively zero, while in wet years, the production can reach several thousand pounds of air dry biomass per acre. Bureau of Land Management studies in the western

Mojave Desert, for example, have shown production to be as high as approximately 3,500 pounds air-dry annual aboveground biomass per acre on good sites (Glenn Harris, pers. comm.).

Measurements in the Gila Resource Area of Arizona have demonstrated production of up to 3,000 pounds per acre or even as great as 5,000 pounds per acre on favorable bottomland sites in very favorable years; average production in favorable years can range downward from 1,500 pounds per acre in bottomland areas to 1,000 pounds per acre on sandy loam uplands to as low as 50 pounds per acre on limy uplands (Jack Norris, pers. comm.). This annual production can be very patchy in nature.

An important phenomenon in the California Desert is the concentration of ephemeral production under and around the bases of shrubs. It is not uncommon for ephemeral production under shrubs to be several orders of magnitude greater than that in the intershrub spaces.

Measurements taken in one area in the Mojave Desert south of Barstow on April 30, 1980, gave ephemeral production values in the neighborhood of 54 to 96 pounds of air-dry aboveground annual biomass per acre in the open, intershrub areas to 670 to 1,607 pounds per acre in the areas around and beneath shrubs. Thus, the range of values is very great, and it becomes necessary to determine the percentage of shrub cover in the area to arrive at an average ephemeral production value.

Although 200 pounds per acre is not very much forage (indeed, if the 200 pounds per acre were evenly distributed throughout an allotment there would probably be few, if any, requests for grazing), an <u>average</u> value of 200 pounds per acre generally reflects the average of intershrub areas with very low production and undershrub areas with high production. Since the amount of shrub cover in the California Desert may be only 10 to 15 percent, the high production is often concentrated, thus making ephemeral grazing economically feasible.

While a study (Gutman and Seligman 1979) on Mediterranean annual range in Israel (and very similar to the annual grassland bordering the Central Valley of California) showed that cattle began to lose weight when the amount of pasture biomass dropped below 700 kg dry matter per hectare (623 pounds per acre), the degree to which this can be related to desert ephemeral range is unclear, especially since 40 to 60 percent of the cover in the Israel study area was provided by hemicryptophytes rather than annuals. Dr. John Menke (pers. comm.) and Dr. James Bartolome (pers. comm.) believe that 300 pounds per acre of available annual production is probably adequate for effective ephemeral grazing on the California Desert and that 200 pounds per acre would be a good range readiness figure as long as this vegetation is still growing and will reach an average of at least 300 pounds per acre.

Some BLM range conservationists personally judge a minimum of 200 pounds per acre as being too restrictive, while others judge it as being not restrictive enough.

Other Restrictions

The Draft Plan initially proposed to limit livestock utilization in desert tortoise crucial habitat to 25 percent in Classes C and L, and 50 percent in Classes M and I. This has been replaced by the restriction to maintain 350 pounds per acre dry weight annual production in desert tortoise highly crucial habitat areas.

The Draft Plan stated that in sheep allotments only one grazing pass per season through desert tortoise crucial habitat would be allowed where densities of tortoises are less than 150 per square mile and the rate of decline is equal to or greater than 5 percent. Two grazing passes would be allowed if tortoise densities exceeded 150 per square mile and the rate of decline was less than 5 percent. The second grazing pass would be allowed only if sufficient forage in excess of 200 pounds per acre was available. In cattle allotments, where the ephemeral portion of an allotment is in tortoise crucial habitat, cattle turnout would be restricted to 30 days following the onset of tortoise foraging.

This has been changed to restrict sheep allotments to one grazing pass per season in highly crucial desert tortoise habitat. The cattle allotments will be addressed individually with a requirement to develop an Allotment Management Plan which will provide for the protection of the desert tortoise highly crucial habitat areas.

An additional restriction is that sheep bedding and watering will occur only on designated areas within highly crucial desert tortoise habitat.

Table XIII-6-1 lists the management guidelines discussion above and the rationale for each. Explanation of desert tortoise crucial and highly crucial habitat and maps of these areas are located in the Wildlife Element section of the Plan.

Part 6

Proposed Range Management Practices

The accompanying Tables XIII-6-1, XIII-6-2, and XIII-6-3 contain proposed range management practices, by allotment. Details for Allotment Management Plan (AMP) priorities are listed by allotment on Table G1 of the Grazing Element. Allotment Management Plan implementation is discussed further in Parts 12 and 13 of this appendix.

MONITORING

In order to evaluate the management techniques prescribed in the California Desert Plan and to ensure the identified objectives are being met, it is imperative to monitor the response of the range. The methods which will be used are outlined below.

Large-Scale Aerial Photo Transects of Selected Areas (1:1,000)

These photo transects will be used to evaluate vegetation cover and composition, general trend, and condition. They also will serve as a permanent nonbiased record of vegetation. Selected photo transects from those already existing will be rephotographed and analyzed every five years at increments of one-fifth per year.

Trend and Utilization Plots

These plots will be actual field measurements of vegetative cover, composition, and use made of the current annual production of forage. Where possible, these plots will be located within the large-scale aerial photo transects. The Trend and Utilization Plots will be recorded at least once annually and analyzed at the end of each grazing cycle in those allotments under a grazing system, or every five years.

Livestock Grazing Exclosures

A limited number of exclosures will be used as "no grazing" comparison areas for both perennial and annual vegetation.

Actual Use Data (Use Supervision)

Numbers and time of use will be on record, and allotments will be checked periodically for compliance with yearly authorized livestock use.

Field Transects

Field transects of vegetative cover and composition will be undertaken. Estimations of key forage-plant species use will be included at times.

Rain Gauges

Rain gauges will provide site-specific measurements of precipitation which will aid in interpretation of production variations.

Production Plots for Annuals and Photo Index

The production plots will be used to determine annual plant production amounts, recorded in pounds per acre. Photographs of the various production levels will be compared to estimated production. This will be accomplished annually to determine turnout dates and to ensure that use levels do not exceed limits outlined in the California Desert Conservation Area Plan.

1/
Per: Forage allocation based primarily on perennial plants.
Eph: Forage allocation based primarily on annual plants.
Eph/Per: Forage allocation based on a combination of annual and perennial plants.

2/
I--Intensive: Management system to be developed will generally include some form of rotation of livestock use (rest, deferment, livestock class, etc.).

M--Moderate: Management system to be developed will generally not involve pastures and rotation systems, but will address specific problems (riparian, wildlife, etc.).

N--Non-intensive: No management of livestock other than the normal lease/permit stipulations and distribution of livestock based on availability of forage and water.

3/
SP=Spring (March, April, May, June); SM=Summer (June, July, August, Sept.); F=Fall (Sept., Oct., Nov., Dec.); W=Winter (Dec., Jan., Feb., March); Y=Year around (use generally moves around allotment seasonally); E=Ephemeral (use when ephemeral growth occurs).

4/
A--Development stages of key species will be used in determining forage readiness.

B--In ephemeral areas which are not highly crucial tortoise habitat, forage production will reach 200 lbs/acre; in highly crucial tortoise habitat, 350 lbs/acre will be used.

5/
A--Up to 50% of current year's production of key perennial forage species in key areas.

B--Opening forage production levels will be maintained through the growing season.

6/
Monitoring:

1=Transects or utilization plots; 2=Transect and utilization plots; 3=Transect and utilization plots and exclosures; 4=Annual production plots; 5=Livestock monitoring or actual use.

Adjustments:

A=Stocking rates determined each growing year; B=Every fifth year, permanent plot data for perennial plant cover (transects and exclosures) will be reviewed to determine if adjustments in yearly stocking rate formulas are

needed to achieve desired production on sustained yield basis. C=Evaluation of all trend and condition plot data after each grazing cycle (modify grazing program when needed to meet condition, trend, and production objectives).

7/
W1--In areas of highly crucial tortoise habitat, sites will be designated for trucked-in water and bedding sites.

W2--Outside of highly crucial tortoise habitat areas, sensitive sites will be designated.

W3--1/4-mile, no-grazing buffer will be identified along some highways in AMP.

W4--Permanent designated sites will be used for all range improvements.

8/
A number of factors were considered important in reaching management practice needs. Forage survey results were used on all allotments. The following criteria are identified by allotment:

C=Wildlife requirements; 1=Tortoise; 2=Big game; 3=Listed and sensitive species

D=Burro and wild horse populations

E=Burro and wild horse management prescriptions

F=Land-tenure adjustments

G=Future economic projection

H=Areas of Critical Environmental Concern (ACEC)

I=Boundary considerations: 1=Other agencies (NPS, FS, DOD); 2=California Desert Conservation Area (CDCA) boundaries (allotment extends outside CDCA); 3=Extensive private land adjacent to public lands.

9/
On all allotments, the following were used: remote sensing data, grazing license records, public comments, rancher input, professional observations and evaluations. In addition, the following sources are identified by allotment:

A=Vegetation and Range surveys; 1=URA-MFP East Mojave 1976; 2=URA-MFP El Paso/Red Mtn. 1975; 3=Adjudication COSO 1966; 4=Rudnick Survey 1970; 5=Ord Mtn. Survey 1977; 6=East Mojave Range Survey 1960s; 7=Cantil Unit Adjudication 1054.

B=Allotment files; 1=Trend plots for East Mojave; 2=Trend plots for Naval Weapon Center; 3=AMP Goldvalley.

C=Special reports and interviews; 1=Allotment review-Riverside District 1979; 2=Allotment review-Bakersfield District 1979; 3=UC Extension Service questionnaire 1979.

D=Comparison areas; 1=Exclosure; 2=Highway right-of-way; 3=Relict areas (little grazed).

E=CDCA inventory; 1=Large-scale aerial transects; 2=Lucerne Valley vegetative survey 1978; 3=Kingston Mtns. vegetative survey 1978; 4=Turtle Mtns. vegetative survey 1978.

Table XIII-6-1

PERENNIAL ALLOTMENTS FOR LIVESTOCK GRAZING

Allotments		Range Type[1]	Prescribed Management Practices						Prescribed New Range Improvements									
									Water Source Development		Water Distribution			Fencing		Exclos.		
NAME (BLM Number)	Map Number	Existing if Different	Type of AMP[2]	Season of Use[3]	Forage Readiness[4]	Maximum Allowable Utilization[5]	Monitoring and Adjustment[6]	Water[7]	Springs	Wells	Catch-ments	Pipeline (miles)	Troughs	Boundary (miles)	Pasture (miles)	(numbers)	Decision Criteria[8]	Data Source[9]
Fishlake Valley (6003)	1		N	SP,SM	A	A	1	W4	-	-	-	-	-	-	-	-	G	
Barr 99 (6001)	2		M	F-W	A	A	2,5,B	W4	-	1	-	1	2	-	-	-	E, I-2, G	C-3
Deep Springs (6005)	3		I	W-SP	A	A	3,5,B,C	W4	1	1	-	6	4	-	6	1	C-2, E, G, H	C-3
Last Chance (6004)	4		M	Y	A	A	3,5,B	W4	1	-	-	2	2	2	-	1	C-2, E, I-2, G	C-3
Oasis Ranch (6000)	5		N	F,W,SP	A	A	3,5,B	W4	-	-	-	-	-	-	-	1	C-2, E, G	C-3
South Oasis (6006)	6		N	SP-SM-F	A	A	2,5,B	W4	-	-	-	1	1	-	3	-	E	C-3
Darwin (5010)	7		N	W-SP	A	A	3,5,B	W4	-	-	-	-	-	1	-	1	D, E	A-3, D-3
Hunter Mt. (5013)	8		I	W-SP	A	A	3,5,B,C	W4	3	-	1	5	6	-	8	2	C-2, D, E, G	A-3, D-1
Lacey-Cactus-McCloud (5012)	9		I	W-SP	A	A	3,5,B,C	W4	3	1	2	18	6	-	10	1	C-2, D, E, I-1	A-3, B-2, D-1
Olancha Common (5011)	10		M	SM	A	A	3,5,B	W4	-	-	-	-	-	-	-	1	C-2	A-3, D-2
Tunawee Common (5009)	11		M	W-SP	A	A	3,5,B	W4	1	1	-	2	3	3	-	1	C-2, E, I-1	A-3, D-2
Oak Creek (5015)	16		N	SP	A	A	5	W4	-	-	-	-	-	-	-	-	I-3	A-7
Warren (5002)	18		N	SP	A	A	5	W4	-	-	-	-	-	-	-	-	I-3	A-7

Table XIII-6-2

EPHEMERAL/PERENNIAL ALLOTMENTS
FOR LIVESTOCK GRAZING

Allotments		Range Type[1]	Prescribed Management Practices					Prescribed New Range Improvements									
								Water Source Development		Water Distribution			Fencing		Exclos.	Decision Criteria[8]	Data Source[9]
NAME (BLM Number)	Map Number	Existing if Different	Type of AMP[2]	Season of Use[3]	Forage Readiness[4]	Maximum Allowable Utilization[5]	Monitoring and Adjustment[6]	Water[7]	Springs	Wells	Catch-ments	Pipeline (miles)	Troughs	Boundary (miles)	Pasture (miles)	(numbers)		
Rudnick Common (5008)	17	per	I	Y	A-B	A-b	3,4,5,A,B,C	W4	8	2	2	4	7	-	30	5	C-3, I-3, G, H	A-2/4/7,C-2,D-2,E-1
Walker Pass Common (0077)	19	per	I	F,W,SP	A-B	A-B	3,4,5,A,B,C	W4	-	1	-	1	3	-	5	3	C-2, I-2	A-2, C-2, D-2, E-1
Pahrump (5000)	20	per	M	SP,SM	A-B	A-B	1,5,A,B	W4	-	-	-	-	-	-	-	-	I-2/3	E-1
Hanson Common (5006)	21	per	M	W,SP,SM	A-B	A-B	1,4,5,A,B	W4	-	-	-	-	-	-	-	-	C-2/3,I-3, G, H	A-2/7, C-2, E-1
Harper Dry Lake (7119)	27	eph	M	Y	A-B	A-B	3,4,5,A,B	W4	-	2	1	-	G	4	-	1	C-1, 6	A-2, C-1/3
Valley Well (7117)	34		N	Y	A-B	A-B	4,5,A,B	W4	-	-	-	-	-	-	-	-	G	C-1
Newberry/Ord (7110)	35	eph	M	Y	A-B	A-B	3,4,5,A,B	W4	2	1	2	-	4	2	-	1	G	A-5, C-1/3, E-1
Rattlesnake Canyon (7111)	36	per	M	Y	A-B	A-B	4,5,A,B	W4	3	1	1	2	6	3	-	-	G	C-1/3
Whitewater Canyon (7118)	37	per	M	Y	A-B	A-B	4,5,A,B	W4	3	-	2	4	6	6	-	-	C-2, D, H, I-3, G	C-1/3
Clark Mt. (7203)	39		I	Y	A-B	A-B	3,4,5,A,B,C	W4	3	3	1	15	12	-	8	1	C-1/2/3/D, E, H	C-1/3
Colton Hills (7202)	40		I	Y	A-B	A-B	3,4,5,A,B,C	W4	2	2	1	15	3	12	30	1	C-1/2/3, D, E	A-1/6;B-2,C-1/3,D-1,E-1
Crescent Peak (7213)	41		I	Y	A-B	A-B	3,4,5,A,B,C	W4	1	2	1	5	6	3	-	1	C-1/2/3/I-2	A-1,B-1,C-1/3,R-1
Granite Mt. (7211)	43		I	Y	A-B	A-B	3,4,5,A,B,C	W4	3	3	3	12	4	15	-	1	C-2/3, D, E	A-1/6,B-1,C-1, E-1
Gold Valley (7212)	44		I	Y	A-B	A-B	3,4,5,A,B,C	W4	2	2	1	5	4	10	10	1	C-2/3, D, E	A-1/6,B-1/2,C-3
Horsethief Springs (7207)	45		I	Y	A-B	A-B	3,4,5,A,B,C	W4	3	2	-	18	7	10	5	1	C-2/3/G	B-1, C-1/3, E-3
Kessler Springs (7208)	46		I	Y	A-B	A-B	3,4,5,A,B,C	w4	3	3	1	15	10	5	5	1	C-1/2, D, E	A-1/6,B-1, C-1/3, E-1
Lanfair Valley (7210)	47		I	Y	A-B	A-B	3,4,5,A,B,C	W4	3	3	2	20	10	-	5	2	C-1/2/3,D,E,H, I-3	A-1/6, B-1, C-1/3, E-1
Round Valley (7216)	49		N	Y	A-B	A-B	4,5,B	W4	-	-	-	-	-	-	1	-	-	A-1, C-1/3
Valley View (7200)	50		I	Y	A-B	A-B	3,4,5,A,B,C	W4	3	2	2	15	5	-	20	1	C-1/2/3, D, E	A-1/6,B-1,C-1/3,D-2,E-1
Valley Wells (7209)	51		M	Y	A-B	A-B	3,4,5,A,B	W4	2	2	-	10	6	20	20	1	C-1/2/3,D,E,G	B-1, C-1/3
Jean Lake (7217)	53		M	Y	A-B	A-B	3,4,5,A,B	W4	-	-	-	3	2	-	-	-	C-1, I-2, G	C-1

Table XIII-6-3

EPHEMERAL ALLOTMENTS FOR LIVESTOCK GRAZING

Allotments		Range Type[1]	Prescribed Management Practices						Prescribed New Range Improvements									
									Water Source Development		Water Distribution			Fencing		Exclos.		
NAME (BLM Number)	Map Number	Existing if Different	Type of AMP[2]	Season of Use[3]	Forage Readiness[4]	Maximum Allowable Utilization[5]	Monitoring and Adjustment[6]	Water[7]	Springs	Wells	Catch-ments	Pipeline (miles)	Troughs	Boundary (miles)	Pasture (miles)	(numbers)	Decision Criteria[8]	Data Source[9]
Antelope Valley (5004)	12	per	N	E	B	B	4,5,A	W2	-	-	-	-	-	-	-	-	I-3	C-3
Bissel (5001)	13	per	N	E	B	B	4,5,A	W2	-	-	-	-	-	-	-	-	F, I-3	-
Cantil Common (5005)	14		M	E	B	B	3,5,A,B	W1,2,3	-	5	-	-	-	-	1	1	C-1, I-3	A-2,C-2/3,D-1/2,E-1,A-7
Monolith Cantil (5007)	15		M	E	B	B	3,5,A	W1,2,3	-	-	-	-	-	-	-	1	C-1, I-3	A-2, D-2, A-7
Boron Sheep (7102)	22		N	E	B	B	2,4,5,A	W2,3	-	-	-	-	-	-	-	-	C-1,F,I-3,G	A-2, C-1
Buckhorn Cyn (7103)	23		N	E	B	B	2,4,5,A	W2,3	-	1	-	-	-	-	-	-	C-1, I-3, G	C-1
Goldstone (7104)	24		M	E	B	B	2,4,5,A	W2,3	-	1	-	-	-	-	-	-	C-1, F, G	C-1
Gravel Hills (7107)	26		M	E	B	B	4,5,A	W1,2,3	-	2	-	-	-	-	-	-	C-1, I-3, G	A-2, C-1, E-1
Lava Mts. (7108)	28		N	E	B	B	2,4,5,A	W2,3	-	1	-	-	-	-	-	-	G	A-2
Pilot Knob (7106)	29		M	E	B	B	4,5,A	W4	2	1	-	1	6	-	-	-	C-1,D,I-1,G	A-2,C-1/3
Shadow Mts. (7113)	30		N	E	B	B	2,4,5,A	W2,3	-	1	-	-	-	-	-	-	C-1,I-3,G	-
Spangler Hills (7112)	31		N	E	B	B	4,5,A	W2,3	-	1	-	-	-	-	-	-	C-1	A-2
Stoddard Mt. (7114)	32		N	E	B	B	4,5,A	W2,3	-	2	-	-	-	-	-	-	C-1,I-3	C-1/3,E-1,2
Superior Valley (7116)	33		M	E	B	B	4,5,A	W1,2,3	-	2	-	-	-	-	-	-	C-1,I-3,G	A-2,C-2,E-1
Afton Canyon (7215)	38		N	E	B	B	2,4,5,A	W4	1	3	3	10	6	20	-	-	C-2/3, G	C-3, E-1
Cronese Lake (7215)	42		N	E	B	B	2,4,5,A	W4	-	2	2	7	4	15	-	-	G	C-3; E-1
Piute Valley (7204)	48		N	E	B	B	3,4,5,A	W4	1	..	-	4	2	2	-	1	C-1, D, E	A-1, C-1
Ford Dry Lake (7044)	52		M	E	B	B	3,4,5,A	W2,3	-	1	1	-	-	-	-	1	H, G	-
Lazy Daisy (7220)	54		M	E	B	B	4,5,A,B	W4	5	3	-	18	10	15	-	-	C-1/2/3	C-1, E-4
Sheep Driveway (5098)	55		M	E	B	B	4,5,A	W2	-	-	-	-	-	-	-	-	-	-

Part 7

Perennial Forage Allocations to Wildlife in Grazing Allotments

FORAGE ALLOCATIONS TO MULE DEER AND DESERT BIGHORN SHEEP

Forage demands and use areas for mule deer and bighorn sheep were taken directly from inventory information received from staff wildlife biologist.

Wildlife use maps were overlaid on grazing allotment maps. Where livestock and deer use occurred in common, the full deer use identified in that area was allocated to deer with the remainder of the carrying capacity going to livestock or wild horses and burros within the allotment. Where livestock and bighorn sheep use occurred in common, twice the bighorn sheep use estimated in that area was allocated to bighorn sheep with the remainder of the carrying capacity going to livestock or wild horses and burros.

In addition, Allotment Management Plans will be developed which will address site-specific habitat needs in regard to the effects of livestock grazing on the habitat and the monitoring needed to assess the effects.

Part 8

Volume Density Values
for Determinations of Production-Biomass Ratios and Forage Use Indices
of Important Desert Perennial Plant Species

Table XIII-8-1
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m^3)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
		SHRUBS AND TREES			
Acacia gregii Cat's claw	Acgr	0.8	0.1	<5	0.01
Acamptopappus shockleyi Shockley goldenhead	Acsh	2.79	0.2	10	0.1
Acamptopappus sphaerocephalus Goldenhead	Acsp	10.65	0.2	10	0.1
Agave deserti Desert agave	Agde	5.0 e	0.1	.0	0.0
Agave utahensis Utah agave	Agut	5.0 e	0.1	.0	0.0

[1] "e" = estimated value

Table XIII-8-1 (Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m^3)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
Allenrolfea occidentalis Pickleweed	Aloc	1.5 e	0.4	0	0.0
Ambrosia dumosa Burrobush	Amdu	2.36	0.2	10	0.1
Artemisia nova Dwarf sagebrush	Arno	1.8 e	0.1	10	0.1
Artemisia spinescens Bud sagebrush	Arsp	4.01	0.2	20	0.2
Artemisia tridentata Great Basin sagebrush	Artr	1.8	0.1	<5	0.01
Atriplex canescens Four-winged saltbrush	Atca	2.57	0.2	40	0.4
Atriplex confertifolia Shadscale	Atco	6.39	0.2	10	0.1
Atriplex hymenelytra Desert holly	Athy	2.83	0.2	<5	0.01
Atriplex lentiformis Quailbrush	Atle	3.0 e	0.2	10	0.1

Table XIII-8-1(Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m³)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
Atriplex polycarpa Cattle spinach	Atpo	4.54	0.2	20	0.2
Atriplex spinifera Mojave saltbush	Atsp	6.4 e	0.2	10	0.1
Atriplex torreyi Torrey saltbush	Atto	5.0 e	0.2	20	0.2
Bebbia juncea Sweetbush	Beju	0.8 e	0.2	10	0.1
Beloperone californica Chuparosa	Beca	3.0 e	0.2	10	0.1
Brickellia arguta Spear-leaved brickellia	Brar	1.3 e	0.2	10	0.1
Brickellia incana Wooly brickellia	Brin	2.0 e	0.2	<5	0.01
Cassia armata Desert cassia	Caar	3.29	0.3	<5	0.01
Ceanothus greggii Desert ceanothus	Cegr	4.73	0.1	10	0.1
Cercidium floridum Palo verde	Cefl	1.0	0.1	0	0.0

Table XIII-8-1 (Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m^3)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
Cerocarpus intricatus Little-leaf Mountain mahogany	Cein	4.0 e	0.1	30	0.3
Cercocarpus ledifolius Curl-leaf Mountain mahogany	Cele	1.7 e	0.1	10	0.1
Chilopsis linearis Desert catalpa	Chli	0.5 e	0.1	0	0.0
Chrysothamnus nauseosus Rubber rabbit brush	Chna	3.49	0.2	<5	0.01
Chrysothamnus paniculatus Black-banded rabbit brush	Chpa	3.5 e	0.2	<5	0.01
Chrysothamnus teretifolius Round-leaved rabbit brush	Chte	3.3 e	0.2	<5	0.01
Chrysothamnus viscidiflorus Sticky-leaved rabbit brush	Chvi	3.3 e	0.2	<5	0.01
Coleogyne ramosissima Blackbrush	Cora	4.8 e	0.1	<5	0.01
Ceratoides lanata Winter fat	Cela	3.9	0.3	40	0.4

Table XIII-8-1 (Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m³)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
Cowania mexicana Cliff-rose	Come	4.8 e	0.1	40	0.4
Dalea fremontii Fremont indigo-bush	Dafr	2.47	0.1	10	0.1
Dalea polyadena Nevada indigo-bush	Dapo	3.0 e	0.1	10	0.1
Dalea spinosa Smoke tree	Dasp	0.63	0.1	0	0.0
Echinocereus engelmanii Calico cactus	Ecen	10.0 e	0.1	0	0.0
Encelia farinosa Brittlebush	Enfa	0.91	0.2	<5	0.01
Encelia frutescens Rayless encelia	Enfr	1.0 e	0.2	<5	0.01
Encelia virginensis Acton encelia	Envi	1.1	0.2	<5	0.01
Ephedra californica California joint fir	Epca	5.5 e	0.3	10	0.1
Ephedra funerea Death Valley joint fir	Epfu	2.2	0.3	20	0.2

Table XIII-8-1 (Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m^3)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
Ephedra nevadensis Nevada joint fir	Epne	4.29	0.3	30	0.3
Ephedra viridus Mountain joint fir	Epvi	5.47	0.3	20	0.2
Eriogonum fasciculatum California buckwheat	Erfa	2.53	0.3	20	0.2
Eriogonum wrightii Wright buckwheat	Erwr	3.0 e	0.3	40	0.4
Fallugia paradoxa Apache-plume	Fapa	4.0 e	0.1	10	0.1
Ferocactus acanthodes Barrel cactus	Feac	107.3	0.1	0	0.0
Fouquieria splendens Ocotillo	Fosp	6.13	0.1	<5	0.01
Garrya flavescens Yellow-leaf silk tassel	Gafl	4.7 e	0.1	20	0.2
Grayia spinosa Spiny hop-sage	Grsp	4.28	0.2	30	0.3
Gutierrezia californica California snakeweed	Guca	2.1 e	0.3	0	0.0
Gutierrezia microcephala Small-headed matchweed	Gumi	2.11	0.3	0	0.0

Table XIII-8-1 (Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m^3)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
Haplopappus cooperi Cooper goldenbush	Haco	2.79	0.2	0	0.0
Haplopappus linearifolius Linear-leaved goldenbush	Hali	2.44	0.2	<5	0.01
Hymenoclea salsola Cheesebush	Hysa	1.54	0.2	<5	0.01
Hyptis emoryi Desert lavender	Hyem	1.3 e	0.2	10	0.1
Isomeris arborea Bladder-pod	Isar	3.5 e	0.3	10	0.1
Juniperus californica California juniper	Juca	3.4 e	0.1	0	0.0
Juniperus occidentalis Western juniper	Juoc	3.4 e	0.1	0	0.0
Juniperus osteosperma Utah juniper	Juos	3.36	0.1	0	0.0
Kochia americana Red molly	Koam	3.1	0.6	<5	0.01
Krameria grayii White ratany	Krgr	0.55	0.5	10	0.1
Krameria parvifolia Little-leaved ratany	Krpa	0.98	0.5	10	0.1
Larrea tridentata Creosote bush	Latr	2.14	0.1	0	0.0

Table XIII-8-1(Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m³)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
Lepidium fremontii Desert alyssum	Lefr	3.23	0.2	<5	0.01
Lepidospartum squamatum Scale-broom	Lesq	3.0 e	0.2	<5	0.01
Lotus rigidus Desert rock-pea	Lori	2.0 e	0.2	<5	0.01
Lycium andersonii Anderson thornbush	Lyan	1.98	0.1	10	0.1
Lycium brevipes Frutilla, desert-thorn	Lybr	12.98	0.1	10	0.1
Lycium cooperi Peach-thorn	Lyco	2.0 e	0.1	10	0.1
Lycium pallidum Rabbit-thorn	Lypa	0.79	0.1	10	0.1
Machaeranthera tortifolia Desert aster	Mato	1.61	0.2	20	0.2
Menodora spinescens Spiny menodora	Mesp	8.36	0.2	20	0.2
Nolina bigelovii Bigelow nolina	Nobi	17.0 e	0.1	0	0.0
Nolina parryi Parry nolina	Nopa	17.0 e	0.1	0	0.0
Olneya tesota Desert ironwood	Olte	1.76	0.1	<5	0.01
Opuntia acanthocarpa Deer-horn cholla	Opac	1.10	0.1	0	0.0

Table XIII-8-1(Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m^3)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
Opuntia basilaris Beavertail cactus	Opba	11.7 e	0.1	0	0.0
Opuntia bigelovii Teddy-bear cholla	Opbi	10.2	0.1	0	0.0
Opuntia echinocarpa Silver cholla	Opec	1.1 e	0.1	0	0.0
Opuntia phaeacantha Desert prickley-pear	Opph	11.7	0.1	0	0.0
Opuntia ramosissima Pencil cholla	Opra	1.1 e	0.1	0	0.0
Petalonyx thurberi Thurber sandpaper plant	Peth	3.3 e	0.3	0	0.0
Peucephyllum schottii Pygmy cedar, desert fir	Pesc	3.0 e	0.1	0	0.0
Pinus monophylla Pinyon pine, single-leaf pinyon	Pimo	2.47	0.1	0	0.0
Prosopis glandulosa Honey mesquite	Prgl	0.81	0.1	<5	0.01
Prosopis pubescens Screw bean mesquite	Prpu	0.8 e	0.1	<5	0.01
Prunus fasciculata Desert almond	Prfa	3.45	0.1	<5	0.01
Purshia glandulosa Antelope-brush	Pugl	4.8 e	0.1	40	0.4

Table XIII-8-1(Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m^3)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
Quercus chrysolepis Canyon live oak	Quch	4.5 e	0.1	<5	0.01
Quercus dumosa Scrub oak	Qudu	4.5 e	0.1	<5	0.01
Ribes velutinum Plateau gooseberry	Ri e	1.0 e	0.2	<5	0.01
Salacornia utahensis Glasswort	Saut	1.5 e	0.4	0	0.0
Salazaria mexicana Paper-bag bush	Same	0.9	0.3	10	0.1
Salix exigua Slender willow	Saex	1.0 e	0.2	10	0.1
Salvia dorrii Great Basin blue sage	Sado	3.0 e	0.2	10	0.1
Salvia mohavensis Mojave sage	Samo	3.0 e	0.2	10	0.1
Sarcobatus vermiculatus Greasewood	Sa e	4.0 e	0.1	0	0.0
Stephanomeria pauciflora Desert straw	Stpa	0.8 e	0.4	30	0.3
Suaeda torreyana Inkweed	Suto	0.75	0.4	0	0.0

Table XIII-8-1 (Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m³)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
Tetradymia glabrata Bald-leaved felt-thorn	Tegl	2.7	0.2	0	0.0
Tetradymia spinosa var. longispina Cotton-thorn	Tesp	3.19	0.1	0	0.0
Thammosma montana Turpentine broom	Thmo	2.99	0.2	0	0.0
Trixis californica California trixis	Trca	1.0 e	0.2	10	0.1
Viguiera deltoidea var. parishii Parish viguiera	Vide	1.0 e	0.2	<5	0.01
Yucca baccata Fleshy-fruited yucca	Yuba	4.88	0.1	<5	0.01
Yucca brevifolia Joshua tree	Yubr	6.65	0.1	<5	0.01
Yucca schidigera Mohave yucca	Yusc	16.94	0.1	<5	0.01
		FORBS			
Mirabilis bigelovii Wishbone bush	Mibi	0.4e	0.6	40	0.4
Sphaeralcea ambigua Desert mallow	Spam	0.41	0.6	40	0.4
Tidestromia oblongifolia Honey-sweet	Tiob	2.0 e	0.6	<5	0.01

Table XIII-8-1(Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m^3)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
		GRASSES			
Aristida spp. Triple-awned grass	Ar__	2.9 e	0.7	20	0.2
Bouteloua curtipendula Side-oats grama	Bocu	1.9 e	0.7	50	0.5
Bouteloua eriopoda Black grama	Boer	1.9 e	0.7	50	0.5
Bouteloua gracilis Blue grama	Bogr	1.9 e	0.7	50	0.5
Distichlis spicata Saltgrass	Disp	1.82	0.7	30	0.3
Erioneuron pulchellum Fluffgrass	Erpu	1.5 e	0.7	20	0.2
Hilaria jamesii Galleta grass	Hija	5.21	0.7	50	0.5
Hilaria rigida Big Galleta grass	Hiri	3.60	0.7	40	0.4
Muhlenbergia microsperma Littleseed muhly	Mumi	2.5 e	0.7	50	0.5
Muhlenbergia porteri Bush muhly	Mupo	1.92	0.7	50	0.5
Oryzopsis hymenoides Indian rice grass	Orhy	2.49	0.7	50	0.5
Poa scabrella Pine bluegrass	Posc	1.1 e	0.7	50	0.5
Sitanion hystrix					

Table XIII-8-1 (Continued)
CDCA SPECIES AND FORAGE IMPORTANCE INDEX

SPECIES NAME Common Name	Species Code	Volume Density[1] (kg/m^3)	Ratio of Production Biomass	Proper Use Factor (P.U.F.)	Forage Importance Index (FII)
Squirrel-tail	Sihy	1.1 e	0.7	40	0.4
Sporobolus airoides Alkali sacaton	Spai	6.12	0.7	40	0.4
Stipa speciosa Desert needlegrass	Stsp	2.92	0.7	50	0.5
Tridens muticus Slim tridens	Trmu	1.46	0.7	40	0.4

Animal Unit Month Forage Allowance

In the development of the forage allocations in the Draft Plan, pounds of dry forage production were not a consideration since no such data were available. The (Animal Unit Month) values given were based on forage acres and forage-acre requirement determinations or on historical use information. A conversion factor of 450 kg (990 lbs.) of dry forage per AUM was stated in the Plan and was used in the Environmental Impact Statement discussions of Impacts on Vegetation Standing Crop and Production. It was anticipated that in the preparation of the Proposed Plan a dry forage AUM equivalent (forage allowance) would be needed.

A forage allowance value of 450 kg (990 lbs.) of dry forage/AUM has now been employed in estimating carrying capacity by allotment in the remote sensing inventory process. In order to understand the derivation of this figure the following discussion is appropriate.

DETERMINATION OF 990 POUNDS (450 kg) PER AUM

An Animal Unit (An Animal Unit (AU) is usually defined as a mature cow with calf or their equivalent (Heady, 1975, p. 117), with a combined live weight of 1,000 pounds (Stoddart and Smith, 1955, p. 2). An AUM is the amount of forage required by an animal unit for one month of grazing (Heady, loc. cit.).

The nutrient requirements of pen-fed livestock are well known. According to the National Academy of Sciences (1976, p. 27), a cow weighing 450 kg (990 lbs.) and nursing a calf requires a minimum daily dry matter consumption (for average milking ability) of 9.3 kg (20.5 lbs). The monthly consumption is therefore 279 kg (614 lbs.). These figures are based on a 100 percent dry matter basis; on a 90 percent dry basis (air-dry) the amount would be 307 kg (675 lbs.). An AUM for pen-fed cattle (lactating cow) would therefore equal 576 pounds of air-dry forage. Because this figure is based on high quality feed and the animal is not required to expend much energy in foraging, the figure is not applicable to range situations.

While much information exists as to the quantitative intake of pen-fed livestock, little experimental information has been amassed for grazing livestock (Cordova, et. al. 1978). Based on energy requirements for maintenance and for activity, especially travel, Cook (1970) concluded that the average intake for a 914 pound cow-calf unit on Great Basin Ranges is approximately 909 pounds dry matter per month. A 1,000 pound cow-calf unit would require an amount somewhat greater than this.

While data used by Cook (1970) were collected on Great Basin Rangelands, these data should also be applicable to rangelands in the California Desert Conservation Area. Both areas require that livestock travel considerable distances to water and expend energy in the search for forage which often is sparse and spotty in distribution. Much of the travel in both areas involves climbing. Because of lower precipitation and more sparse forage, the amount of energy expended by livestock in the California Desert Conservation Area could be greater than that recorded in the Great Basin by Cook.

The 909 pounds dry matter/AUM which Cook reported did not include wastage. Livestock pull and discard plants and damage plants by trampling (Heady 1975; Edmond 1966). Horses and burros are notorious for pulling and discarding vegetation (McKnight 1958); therefore, on allotments containing wild horses or burros, wastage may be a more important factor than on allotments with no wild horses or burros.

Based on the information presented above, it is concluded that a value of 450 kg (990 lbs.) of air-dry forage is equivalent to one AUM. This value takes into consideration the additional energy requirements on desert rangeland and provides a margin for wastage.

Several professional range conservationists consulted have agreed that this is a good conservative figure.

Forage Requirement of Sheep: AU Equivalent.

The Animal Unit (AU) equivalent for sheep is a well-established and long-used figure. Five sheep are considered equivalent to one Animal Unit Month (AUM) (Heady 1975; Stoddart et. al. 1975). Therefore one sheep is 0.2 animal unit month.

Forage Requirements of Wild Horses and Burros: AU Equivalent.

Critical to the allocation of forage to wildlife, livestock, and wild horses and burros is a knowledge of the forage requirements of all three classes of animals. It is especially helpful to arrive at an AU equivalent for these classes of animals. This section deals with AU equivalents for wild horses and burros.

For wild horses, the traditional equivalent of one horse per AUM will be used; this figure has longstanding use (see, for example, Heady 1975, BLM Manual 1371.53A5). For burros, no such equivalent figures are widely recognized. The BLM Arizona State Office is using an equivalent of 0.5 AUM for burros (Vince Ogurek, pers. comm.). This is based on a literature search of the scanty information available on the subject and on the average weight of the burros. In Arizona the average weight of the burros is approximately 375 pounds.

The burros in the deserts of California are often considerably larger than those in Arizona, especially in the northern part of the desert (LaVern Young, pers. comm.). California feral burros can reach weights of 600 pounds or more (Young, pers. comm.).

Because of this fact, and because, as noted, burros often pull grasses and eat only parts of them, it was felt that an equivalent of .5 AUM was not sufficient to allow an adequate measure of protection to the range. Therefore, the equivalent of 0.7 AUM (700 lbs. of air-dry forage/AUM) will be used in allocating forage to burros.

Part 10

Proposed New Grazing Allotments

Listed on Table XIII-10-1 is a summary of actions taken regarding proposed new grazing allotments. The proposed allotments were analyzed for possible conflicts with other sensitive resources. Those areas identified were either removed from the proposed allotment or the entire allotment was dropped from consideration. Those areas where grazing will be allowed are shown on Table LG-1 of the Grazing Element and the accompanying allotment map. A map of the areas on Table LG-1 where grazing use will not be allowed is contained on the Desert Planning Staff map dated 6-10-80. Table XII-10-2 shows the size of proposed new allotments and extensions.

Any additional grazing uses which were not considered in this Plan will be handled through existing BLM procedures and regulations in addition to the Plan amendment process.

WILDLIFE AND CULTURAL RESTRICTIONS

56. Tecopa

Wildlife Mountains excluded for bighorn sheep. Unique riparian areas should be excluded. No conflicts with area immediately east of Hwy 127 to foothills.

Cultural. Exclude grazing northeast portion of proposal for numerous cultural sites, severe negative impacts would occur from grazing on surface deposits. Also exclude grazing on western edge where Amargosa Mystery Rings are located. Chicago Valley most important area to exclude grazing.

Decision: Eliminate Proposal

57. Rattlesnake Canyon Extension

Wildlife. Possible reintroduction of bighorn sheep needs further study.

Cultural. Many sites recorded in area. Grazing would have moderate impacts on sites, because of previous grazing in area.

Decision: Eliminate Northern portion of proposal to eliminate possible cultural impacts.

58. Johnson Valley

Wildlife. Low impacts to tortoise.

Cultural. Low impacts to cultural resources.

Decision: Grazing impacts negligible.

59. Ludlow

Wildlife. Grazing should be excluded from the western edge to exclude impacts to tortoise habitat.

Cultural. Grazing will have a low to moderate impact on scattered sites.

Decision: Exclude grazing on western edge of proposed allotment.

60. Round Mountain

Wildlife. No adverse impacts identified.

Cultural. No adverse impacts identified.

61. Chemehuevi

Wildlife. Over three-fourths of proposal in either highly crucial or crucial tortoise habitat. Bighorn sheep range is also located in allotment.

Cultural. Large portions of proposed allotment within highly sensitive areas. Many sites located in areas that would be severely impacted by grazing.

Decision: Eliminate proposal.

62. Rice Valley

Wildlife. Southeastern portion of proposal is in bighorn sheep range.

Cultural. No surface sites identified.

Decision: Eliminate grazing from bighorn sheep range.

63. Palen

Wildlife. Western edge of proposal is within bighorn sheep range. Very important area to sheep. Move proposal one mile away from mountains.

Cultural. No sites identified.

Decision: Exclude grazing in bighorn sheep ranges.

64. Ford Dry Lake Annex

Wildlife. Bighorn sheep range and highly crucial tortoise habitat are in southern portion of allotment. Sheep grazing would have a very severe impact on these species south of old highway. Western boundary includes a proposed Area of Critical Environmental Concern which should not be grazed.

Cultural. Low to moderate impacts on resources in proposal.

Decision: Adjust boundary of proposal to exclude grazing from mountains and move all water improvements away from mountains by one mile.

65. Homewood Canyon

Wildlife. Mohave ground squirrel and bighorn sheep range are within proposal. Exclude grazing from bighorn sheep area.

Cultural. No known archaeological resources in area.

Decision: Adjust boundary of proposal to exclude grazing from mountains and move all water improvements away from mountains by one mile.

66. Death Valley Junction

Wildlife. Nevada speckled dace located within allotment. Dace habitat should be fenced before allotment authorized.

Cultural. No adverse impacts.

Vegetation. Rare and endangered plant located within allotment. Further study of species protection needed before allotment authorized.

Decision: Further study and possible fencing of dace habitat and rare and endangered plant before authorizing allotment.

67. Lathrop Well

Wildlife. Amaragosa Area of Critical Environmental Concern included within allotment. No grazing should be allowed.

Cultural. Very severe impacts from grazing would occur on surface sites.

Decision: Eliminate proposal.

68. Granite Mountain Annex

Wildlife. Exclude grazing from bighorn sheep range which includes all mountains within proposal.

Cultural. Moderate impacts to surface sites within central portion of proposal. Excluding these areas from proposal would leave an unmanageable area with unrealistic fencing cost.

Decision: Eliminate proposed allotment.

69. Ord Mountain Extension

Wildlife. Very large raptor area within proposal. Some desert tortoise habitat area also within area. Do not authorize allotment until Habitat Management Plan is completed.

Cultural. Moderate impacts will occur on cultural site located in foothills. Most severe impacts should be avoided on Cinnamon Roll Hills.

Decision: Wait for Habitat Management Plan to be completed by wildlife personnel. Follow direction of HMP in authorizing lease. Do not allow grazing in Cinnamon Roll Hills.

70. Rodman

Wildlife. Same as Ord Mountain Extension.

Cultural. Western half of proposal is nominated to National Register of Historic Places because of very significant cultural sites. Grazing would severely impact this area.

Decision: Exclude proposal from grazing.

71. Whitewater Canyon Extension

Wildlife. No identified conflicts.

Cultural. Numerous significant sites located within proposed lease. Heavy impacts would occur to cultural resources, especially in Pipes Canyon.

Decision: Exclude grazing from proposal except for a two to three-mile portion along northern boundary. More specific boundary to be decided at time of authorization with cooperation of area archaeologist.

72. Kelso Mountain

Wildlife. Bighorn sheep habitat, two-thirds of proposal, should be excluded from grazing. Remaining third should be excluded from grazing because of tortoise habitat.

Cultural. No significant impacts.

Decision: Exclude grazing from proposal.

73. Eureka Valley Annex

Wildlife. Adjust proposed boundary away from bighorn sheep range.

Cultural. Some impacts on dry lake bed; over-all minimal impacts.

Decision: Reduce boundary limits to reduce wildlife impacts.

74. Last Chance Extension

wildlife. Relocate boundaries to eliminate bighorn sheep range from proposal.

Cultural. Negligible impacts anticipated overall.

Decision: Redraw proposed allotment boundaries away from bighorn sheep range.

75. Superior Valley Extension

Wildlife. South half of proposal is crucial desert tortoise habitat. Northern portion is desert tortoise and Mohave ground squirrel habitat.

Cultural. Exclude grazing from highly sensitive area in southwestern portion of allotment.

Decision: Proposed allotment boundaries adjusted to eliminate significant impacts to cultural and wildlife resources.

76. Soda Lake

Wildlife. Exclude proposed Area of Critical Environmental Concern from grazing.

Cultural. Very high sensitivity to cultural resources within proposal.

Decision: Eliminate proposed allotment.

77. Needles

Wildlife. Move proposed boundary east from bighorn sheep range in Sacramento Mountains.

Cultural. Very significant impacts to resources in lower portion of proposed allotment.

Decision: Eliminate proposed allotment.

78. Glamis

Wildlife. Exclude grazing from significant riparian area at Indian Wash.

Cultural. Surface features located in area highly sensitive to cattle grazing.

Decision: Eliminate proposed allotment.

79. Border

Wildlife. Entire area habitat of flat-tailed horned lizard, a proposed BLM sensitive species.

Cultural. Western half of allotment proposed as an Area of Critical Environmental Concern. No grazing should occur within this area.

Decision: Eliminate proposed allotment.

80. Pahrump Extension

Wildlife. Bighorn sheep range on western edge. Move any proposed improvements a minimum of one mile away from foothills.

Cultural. Northern end of proposal contains approximately 20 sites. These sites should be reviewed by BLM cultural resources staff before proposal is approved.

Decision: Adjust boundary to exclude grazing from bighorn sheep range and follow cultural resources staff recommendations.

Table XIII-10-1
PROPOSED NEW GRAZING ALLOTMENTS

Map Number	NAME	Grazing Use Allowed	Not Allowed[1]	Boundary Adjustments[1]
56	Tecopa		A,B	
57	Rattlesnake Cyn. Ext.	X		B
58	Johnson Valley	X		
59	Ludlow	X		A
60	Round Mountain	X		
61	Chemehuevi		A,B	
62	Rice Valley	X		A
63	Palen	X		A
64	Ford Dry Lake Annex	X		A
65	Homewood Canyon	X		A
66	Death Valley Jct.	X		
67	Lathrop Well		A,B	
68	Granite Mtn. Annex		A,B	
69	Ord Mtn. Ext.	X		B
70	Rodman		B	
71	Whitewater Cyn. Ext.	X		B

[1]Rationale for not allowing grazing use or adjusting boundary.
A - Overriding conflicts with wildlife habitat.
B - Overriding conflicts with archaeological values.

Table XIII-10-1 (Cont'd.)
PROPOSED NEW GRAZING ALLOTMENTS

Map Number	NANE	Grazing Use Allowed	Not Allowed	Boundary Adjustments
72	Kelso Mountain		A	
73	Eureka Valley Annex	X		A
74	Last Chance Ext.	X		A
75	Superior Valley Ext.	X		A,B
76	Soda Lake		A,B	
77	Needles		A,B	
78	Glamis		A,B	
79	Border		A,B	
80	Pahrump Ext.	X		A

Table XIII-10-2
PROPOSED ALLOTMENT ACREAGES

Map Number	NAME	Original Proposed Allotment Acreage	Wildlife Exclusions	Cultural Exclusions	Proposed Allotment Acreage
56	Tecopa	96,000	65,000	20,000	0
57.	Rattlesnake Cyn. Ext.	12,800	0	5,346	7,454
58	Johnson Valley	115,000	0	0	115,000
59	Ludlow	44,000	700	0	43,300
60	Round Mountain	14,000	0	0	14,000
61	Chemehuevi	70,000	70,000	0	0
62	Rice Valley	40,000	2,200	0	37,800
63	Palen	67,000	16,000	500	50,500
64	Ford Dry Lake Annex.	104,000	56,800	0	47,200
65	Homewood Canyon	14,000	1,100	0	12,900
66	Death Valley Jct.	13,100	0	0	13,100
67	Lathrop Well	10,100	2,525	2,525	5,050[1]
68	Granite Mtn. Annex	28,500	11,520	1,920	0
69	Ord Mtn. Ext.	48,500	0	7,400	41,100
70	Rodman	58,700	0	25,000	0

Table XIII-10-2 (Cont'd.)
PROPOSED ALLOTMENT ACREAGES

Map Number	NAME	Original Proposed Allotment Acreage	Wildlife Exclusions	Cultural Exclusions	Proposed Allotment Acreage
71	Whitewater Cyn. Ext.	5,700	0	2,100	3,600
72	Kelso Mountain	31,100	31,100	0	0
73	Eureka Valley Annex.	8,700	3,200	0	3,500
74	Last Chance Ext.	18,880	10,880	0	8,000
75	Superior Valley Ext.	72,764	22,464	15,300	35,000
76	Soda Lake	26,240	3,200	16,000	0
77	Needles	8,960	640	8,320	0
78	Glamis	4,280	4,480	23,680	0
79	Border	6,000	3,000	3,000	0
80	Pahrump Ext.	46,655	5,120	0	41,535
	TOTAL	1,003,579	309,929	131,091	479,039

Part 11

Range Condition in the California Desert Conservation Area

Condition rating for allotments refers primarily to the status of the composition cover and the vigor of the vegetation relative to the natural potential of the areas under consideration. Secondarily, the rating refers to the soil stability status relative to the amount of accelerated erosion in evidence. This is judged by comparing representative areas of the allotment to relict areas, exclosures, similar sites in other allotments, and/or historical information.

A stated in the element, certain forage plants were used as indicators of range condition by their characteristic response to grazing pressure. This response is related to their ability to withstand grazing and their palatability to the grazing animals.

Generally "decreasers" decrease in the composition under heavy grazing pressure. "Increasers" increase in the composition under heavy grazing pressure. When conditions deteriorate appreciably, weedy plants or "invader species" become more evident and eventually replace the increasers.

The rankings of excellent, good, fair, and poor were assigned as follows:

Excellent

Plant cover and species composition exhibit amounts and proportions representative of the presumed "climax" for the area. When the potential is high for decreaser species, these species are abundant and in good vigor. When the potential for decreaser species is low, individuals of these species, though infrequent, are in good vigor. There is no evidence of accelerated erosion.

Good

Total plant cover is nearly the same as in the excellent category, but may be lower or higher, depending on the kind of composition changes that have occurred, i.e. grazing may bring an increase in shrubs. Composition shows decline in decreaser species. Increaser species are vigorous. Invader species may be present but do not make up significant amounts of the perennial cover. Accelerated erosion is not noticeable.

Fair

Total perennial plant cover is generally reduced. Decreaser species show reduced vigor and are present as remnant populations in sheltered or protected locations (regularly under bushes). Invaders are present; increasers are increasing, and cover is tending lower. Accelerated erosion is in evidence.

Poor

Plant cover is markedly reduced. Decreasers are gone or those that are left are all in inaccessible areas. The composition has shifted almost entirely to invader and increaser species. Accelerated erosion is very evident.

Examples of species considered as decreasers, increasers, and invaders for different regions of the CDCA follow.

EAST MOJAVE	WEST MOJAVE	NORTH MOJAVE
	DECREASERS	
Boufeloya eriopoda	Stipa speciosa	Stipa speciosa
Muhlenbergia porteri	Oryzopsis hymenoides	Oryzopsis hymenoides
Oryzopsis hymenoides	Poa scabrella	Ceratoides lanata
Hileria jamesii	Ephedra nevadensis	Ephedra nevadensis
Ephedra nevadensis	Atriplex canescens	Atriplex canescens
Ambrosia dumosa		
	INCREASERS	
Juneperus osteosperma	Yucca brevifolia	Juniperus
Artemisia tridentata	Artemisia tridentata	Artemisia tridentata
Yucca spp.	Chrysotharmnus spp.	Chrysothamnus spp.
Opuntia spp.	Sitanion hystrix	Atriplex confertifolia
Haplopappus cooperi	Amsinkia spp.	Sarcobatus vermiculatus
Amsinkia spp.	Descurainia spp.	
	INVADERS	
Bromus rubens	Schismus spp.	Bromus tectorum
Erodium cicutarium	Bromus rubens	Salsola iberica
Schismus spp.	Erodium cicutarium	Halogeton glomeratus
Salsola iberica	Marubium spp.	
Bromus tectorum	Xanthium spp.	

The key perennial forage species, generally called decreasers, of the CDCA are listed below.

PERENNIAL GRASSES

Common Name	Scientific Name
Black grama	Boutelova eriopoda
Blue grama	Boutelova eriopoda
Galleta	Hilaria jamesii
Big galleta	Hilaria rigida
Bush muhly	Muhlenbergia porteri
Indian tricegrass	Oryzopsis hymenoides
Bluegrass	Poa scabrella
Desert needlegrass	Stipa speciosa

FORBS

Globe Mallow	Sphaeralcea amigua

SHRUBS

Bur sage	Ambrosia dumosa
Bur sagebrush	Artemesia spinescens
Four-winged saltbuch	Atriplex canescens
Winterfat	Ceretoides tanata
Nevada tea	Ephedra nevadensis
Hop sage	Grayia spinosa
Grays' ratany	Krameria grayi
Range ratany	Drameria parvifolia
Desert bitterbrush	Purshia glandulosa

Part 12

Grazing Consultation Process

Public involvement in the Bureau of Land Management's (BLM's) decision-making process in required in both the Federal Land Policy and Management Act of 1976 (FLPMA) and the Public Rangelands Improvement Act of 1978 (PRIA). FLPMA requires that BLM give public and governmental agencies an opportunity to participate in preparation and execution of programs for the management of public lands. In addition, Section 8 of PRIA requires consultation, cooperation, and coordination with lessees, permittees, and landowners, the District Grazing Advisory Boards, any affected state agencies and others in the development of Allotment Management Plans.

The 1980 Interior Department Appropriations Act (HR4930) stipulates that BLM inject additional considerations of economic impact into the process of determining adjustments in grazing use. The BLM Rangeland Consultation Policy will comply with and complement these Congressional mandates, expand the concept of consultation into all phases of the rangeland management program, and ensure progress in improving public service. The District Manager must ensure that this takes place and document the process.

During the consultation process, targets for contact include Federal, state, and local governmental agencies and organizations, and private organizations, with primary emphasis being given to lessees, permittees, landowners, and advisory boards. Upon completion of a Proposed Plan and Final Environmental Impact Statement, the District Manager meets with various members of the target group and informs them of the modifications which were incorporated into the Proposed Plan and Final EIS. The schedule for developing the Final Plan and how the CDCA management plan will be implemented is also discussed.

After the CDCA management plan and associated Rangeland Management Program Document are developed, appropriate members of the target group are contacted within 90 days for Plan review. In the event of disagreements, further consultation is required with the District Advisory Board. It is essential that this phase be conducted in an atmosphere of mutual trust, coordination, and consultation since all subsequent range-related actions will hinge on those documents.

Participation will also be encouraged at this time in the development of the monitoring system, once the monitoring needs are identified.

The District Manager or authorized representative will notify the Advisory Board and permittees/lessees of when the grazing decisions will be issued.

Any protests and/or appeals will be handled on a case-by-case basis (refer to Part 13, Implementation Process).

Meetings and individual contacts will be made for assistance and participation in the development of Allotment Management Plans, placement of range improvements, design of grazing systems, design of monitoring system, and any other grazing administrative practice needed.

Once approved, the AMP will be signed by the grazing operator as a cooperative agreement. The District Manager or authorized representative will meet with the target group when any modifications or administrative actions are to be taken as a result of monitoring studies.

Part 13

Implementation Process

Following the public comment period on the Proposed California Desert Conservation Area Plan (CDP) and Final Environmental Impact Statement (EIS) the Rangeland Management Program Document will be issued which will serve as the final decision on the range management program to be implemented in the CDCA. It will explain why this decision was made and the results expected from the decision.

The alternatives to the accepted management decisions and the rationale for an alternative not being selected will be described. Public involvement in this plan up to final decision will be documented.

An action plan for implementing the final plan will be developed and will include the details of the components outlined below.

A. Decisions
B. Allotment Analysis
C. Allotment Management Plan (AMP) and Monitoring System Development
D. AMP and Monitoring System Implementation
E. Use Supervision

A. DECISIONS

1. Perennial Ranges

a) Baseline. The starting point for implementing livestock grazing adjustments on grazing allotments within the perennial range vegetation type will be the carrying capacity for domestic livestock as identified in the final California Desert Conservation Area Plan. Livestock grazing decisions which implement grazing adjustments will be issued to the affected livestock operators within one (1) year following the effective date of the final CDCA Plan. These decisions will specify by allotment, the following items relative to livestock grazing:

-Number of animals
-Season of use
-Allowable Active Preference (AUMs)
-Area of use
-Class of livestock
-Status of 10-year permit
-AMP (if it has been prepared by this time)

b) Adjustment Schedule. The schedule for implementing livestock grazing adjustments will be A schedule for implementing livestock grazing adjustments will be developed, by allotment, for each livestock operator. Decisions regarding adjustments will go into effect the following grazing season. Decisions are subject to implementations over a three-year period as provided under current grazing regulations (43 CFR 4110.3-2(c). This period may be extended if a new BLM policy on implementation is adopted and the regulations are changed. Phased reductions will be utilized to minimize the economic impacts associated with grazing reductions.

The following criteria will be used when identifying opportunities for phasing reductions: (1) ability of the resources to withstand such phasing; (2) available agricultural assistance programs; (3) magnitude of projected reductions; and (4) alternative pasturage available. These adjustments will be worked out individually with the livestock operators.

On allotments where wild burro reductions are required to achieve management objectives, livestock adjustments will be made as specified in the Final CDP. However, in these instances, equal or greater priority will be given to reducing wild horse or burro populations to the level specified in the Herd Management Area Plans.

c) Monitoring. Studies will be established prior to or simultaneously with the implementation of phased grazing adjustments. These studies will be designed to evaluate the effects of phased reductions on the utilization of key forage species. Criteria for adjustments in livestock grazing as a result of monitoring will be a part of the monitoring system.

2. Ephemeral/Perennial

a) Baseline. The starting point for implementing livestock grazing adjustments on grazing allotments within the perennial/ephemeral vegetation type, will be the carrying capacity of the perennial vegetation for domestic livestock as identified in the Final Plan. In addition, ephemeral authorizations may be issued when production of ephemeral forage exceeds 200 pounds of air-dry forage/acre along with any additional restrictions required by the Final Plan.

Livestock grazing decisions which implement grazing adjustments will be issued to the affected livestock operators within one (1) year following the effective date of the final plan. These decisions will specify by allotment, the following items relative to livestock grazing:

-Number of animals.

-Season of use (perennial forage and ephemeral).

-Allowable active preference (AUMs).

-Area of use.

-Class of livestock.

-Status of 10-year permit.

-Suspended preference (AUMs).

-Issuance of ephemeral authorizations when ephemeral.

-Production exceeds 200 lbs/acre.

-AMP (if it has been prepared by this time).

-Adjustment schedule. See Item 1b above.

-Full force and effect.

b) Monitoring. See Item 1c above for the relation of monitoring to perennial vegetation. See Item 1c above for the relation of monitoring to perennial vegetation. A predictive model which correlates soil moisture with ephemeral vegetation production will be developed. Based upon this model, monitoring will consist of evaluating soil moisture conditions to predict ephemeral production three weeks prior to scheduled livestock turnout. In addition, ocular or other estimates of livestock utilization of ephemeral forage will be made to assure that 200 pounds of air-dry ephemeral production is maintained on each perennial/ephemeral allotment.

3. Ephemeral

a) Baseline. Ephemeral authorizations which are renewed annually may be issued when production of ephemeral forage exceeds 200 pounds of air-dry forage/acre. This level of forage restriction will be made a part of the grazing decision along with any other stipulations called for in the final CDP.

Livestock grazing decisions which will state that the area of use will be issued to the affected livestock operators within one (1) year following the effective date of the final plan. The ten-year permit will only reflect area of use.

b) Monitoring. Annual soil moisture measurements will be taken and correlated to production clip plots and

photographs on selected areas to predict ephemeral production three weeks prior to scheduled livestock turnout. In addition, ocular estimates of livestock utilization of ephemeral forage will be made to assure that 200 pounds of air-dry ephemeral production is maintained on each ephemeral allotment. A photo index of different production levels will be maintained by the Resource Area.

B. ALLOTMENT ANALYSIS

Available data pertaining to each grazing allotment will be assembled and analyzed using procedures outlined in draft BLM Manual 4420. This analysis will be developed for each allotment in the CDCA and will serve as the basis for determining the specified detail needed in AMP preparation. As a part of this analysis, the presence and use of private lands within each allotment will be evaluated. The objective of this evaluation will be to determine the carrying capacity of private lands within grazing allotments and to convert percent Federal range licenses/leases to exchange-of-use agreements.

Data Sources would include: (1) Final CDD; (2) case files, and (3) Operator contracts.

C. ALLOTMENT MANAGEMENT PLANS/MONITORING SYSTEM DEVELOPMENT

Allotment Management Plans will be prepared for all grazing allotments within the CDCA. Priority for AMP preparation will be based upon the following considerations:

1. Allotments containing complex resources values or problems which can be resolved or improved through an AMP.

2. Allotments containing a majority of Public Land.

3. Allotments which are in poor range condition and which have potential for improvement through an AMP.

4. To mitigate impacts of adverse decision to livestock operators.

Allotment Management Plans will be formulated based upon an analysis of data contained in the allotment file. The basic management objectives of the Final CDP will be used in conjunction with specific resource objectives to identify the objectives of the AMP.

Periodic contacts with livestock operators and grazing advisory boards will be made, as outlined in the consultation plan, to determine details of grazing system or method of use and range improvements needed. The livestock operators should also provide input for design of range improvements.

Individual rancher contacts have been and should continue to be scheduled at the resource-area level for AMP development.

A system will be designed for monitoring the effectiveness of livestock grazing in meeting the over-all objectives of the CDP and the specific objectives of individual allotment management plans. This system will be designed concurrently with and incorporated into AMPs as they are developed.

The monitoring studies to be used will be standard BLM studies to the extent possible. When BLM studies are appropriate, a thorough description of the study technique used will be maintained in the allotment file. The allotment file will also contain a schedule for reading each study which is contained within the allotment boundary. As a minimum, monitoring studies will be established to evaluate (1) range condition, (2) range trend, (3) range utilization, (4) actual livestock use, and (5) precipitation patterns.

D. AMP/MONITORING SYSTEM IMPLEMENTATION

Where possible, AMPs will be jointly agreed upon with the affected range users. All AMPs will be implemented by decision regardless of whether or not joint agreement is obtained.

Range improvement projects associated with AMPs will be implemented according to available funds and state priorities. Range improvements for AMPS within the CDCA will be implemented according to the following priority:

1. Fences required to protect threatened resource values.

2. Water developments which benefit a variety of grazing animals.

3. Water developments required to implement grazing systems.

4. Allotment boundary fences.

5. Pasture division fences.

6. Projects to facilitate livestock management.

The scheduling of these projects will normally follow the same basic considerations identified for AMP development under Item D above.

Allotment Management Plan monitoring systems will be initiated at the same time as AMPs are agreed upon or implemented by decision.

Because of economic constraints, intensive monitoring will not be possible for all AMPs. As a result, extrapolation of data between AMPs will be used when similar conditions are available. Data will not be extrapolated unless monitoring checkpoint studies are available to confirm or deny the applicability of data to be extrapolated.

Based upon the results of monitoring studies, livestock grazing use may be adjusted upward or downward and/or the grazing management system modified to meet the objectives of the AMP.

E. USE SUPERVISION

Compliance with authorized grazing use is essential to achieve the management objectives. Use supervision will be accomplished by periodic allotment checks by resources-area staff.

On large allotments or common use allotments, ear tagging may be required as specified in the AMP.

Part 14

Forage Condition and Forage Production Forecast Methodology

Since under the Proposed Plan only maintaining good condition or improving fair to poor condition will be prescribed, only improving-condition methodology is considered. This differs from the Draft Plan where a decreasing condition occurred in the No Action Alternative.

The Improving Condition Formula Used:

$$A = B + (B \times C)$$

A = Predicted forage production in AUMs following 20 years of management as proposed by allotment.

B = Estimated current livestock forage production in AUMs by allotment (carrying capacity).

Current livestock forage production was estimated from reviewing past forage surveys and the multistage sampling remote sensing survey competed in 1980.

C = Expected percentage change in condition and trend after 20 years under the management proposed.

Estimates of expected percentage change in condition and trend were based on the assumption that on a normal vegetative condition and trend curve there is a higher percentage increase in values at the lower end of the curve than can be expected at the upper limits of the curve in a set period of time (20 years), e.g., there will be a higher percentage increase between the poor to fair condition than between the good to excellent condition. Therefore, the percentages used in the model were as follows: poor to fair, 40 percent; fair to good, 35 percent; and good to excellent, 25 percent. These percentages are maximum increases in percentage points needed to change the present condition either upward or downward.

Part 15

Socioeconomic Analyses of Livestock Grazing in the CDCA

GENERAL DISCUSSION OF LIVESTOCK OPERATIONS

The California Desert Conservation Area (CDCA) consists of a mosaic of overlapping types of livestock operations. Such factors as rainfall patterns, geographic region, history, personal preference, and family ties have all led to what are now four distinct types of livestock operations into which most can be classified.

There are 63 different operators grazing around 90,000 head of livestock on 53 allotments using 124,000 Animal Unit Months (AUMs) of forage.[1] The cash value of these animals is around $11 million. They produce an annual gross income of around $8.5 million. There are several operators with more than one allotment or type of livestock.

Twenty-five different sheep operators graze approximately 75,000 head of sheep on 17 allotments for 25,000 AUMs. BLM forage in the CDCA provides about 14 percent of the annual forage requirements for these animals. The gross annual sales from these animals is $6 million. About 8 percent of the sheep in California graze on BLM forage in the CDCA.

Thirty-nine operators graze cattle on 36 allotments with approximately 14,000 head of cattle using 98,000 AUMs of forage. BLM forage provides 58 percent of the annual forage requirements for these animals. The gross annual sales from these animals is $2.5 million. About 2 percent of the beef cattle in California use BLM forage in the CDCA.

All of these operators are family-owned or partnership enterprises whose primary source of income is the livestock business. Most of the sheep operators live outside of the CDCA in the Bakersfield area, and the cattle operators live on ranches in the CDCA.

Cow-Calf Operations

The cow-calf operations on the northwestern CDCA are probably the most structured of all of the livestock operations (Figure A.) Four operators around the Owens Lake typify this type of operation. All of these operators

[1]Quantities of AUMs used in this report are five-year average of authorized use taken as an estimate of actual use. This number is not the same as preference use which is a legally defined term relating to maximum use which may be permitted on perennial range. Authorized use includes both ephemeral and perennial ranges.

grow alfalfa on their home ranches to feed their stock when needed on their home ranch and to provide a cash crop. The cattle are mostly trailed to the winter range on BLM lands and are trailed to Forest Service permits for the summer range. Generally very little private land occurs in these allotments.

Because feed production is very consistent, the operations show few changes from year to year. Weaning the calves occurs on the home ranch in the late spring, and the cows go to the summer ranges on the Forest Service lands. These calves can be held as stockers, used as replacements, or be sold as stockers. The loss of Federal grazing privileges would probably totally destroy these operators, because almost all of the private lands are tied up and would be unavailable for grazing.

In the East Mojave region, cow-calf operators have been faced with less consistent rainfall, nearly year-around growing season, both winter and summer rains, unpredictable spring and summer ephemeral feed, and the fact that private and public lands are very intermixed. As a result, the cattle operations use BLM lands year around with smaller herds; only 3 out of 16 are over 400 head. Livestock move to higher elevations in the summer and return in the fall. Handling of the livestock occurs once or twice a year with the number and timing based on personal preference of the operator. Calves are held or sent to the market depending on market price and economic situation. Breeding, calving, and weaning occur at various times of the year. Stocker cattle are sometimes used in the spring and summer when ephemeral feed is available (See Figure B). Several of the allotments are on the California-Nevada border, and the operators have BLM grazing permits with BLM's Las Vegas District Office also. If they lost the use of BLM lands, these operators would be in serious trouble because their private lands, which are mixed in among BLM lands, would become inaccessible.

Stocker Operations

One of the most recent developments in cattle ranching is the stocker operation. This form of operation developed as a result of a readily available supply from Mexico of weaned calves which weigh around 300 pounds. This highly specialized operation range-feeds the animals to a weight of around 600 pounds, after which they are sold. This operation can change livestock numbers rapidly to correspond to feed conditions because all of the stock is purchased and sold each year. One operation in the CDCA has a standard deviation of more than 40 percent in the number of animals from year to year. These operators are generally high risk because the cost of weaned calves and grown steers varies widely. Rapidly changing prices may erase a profit while the animals are on the range. A typical stocker operating schedule is shown in Figure C.

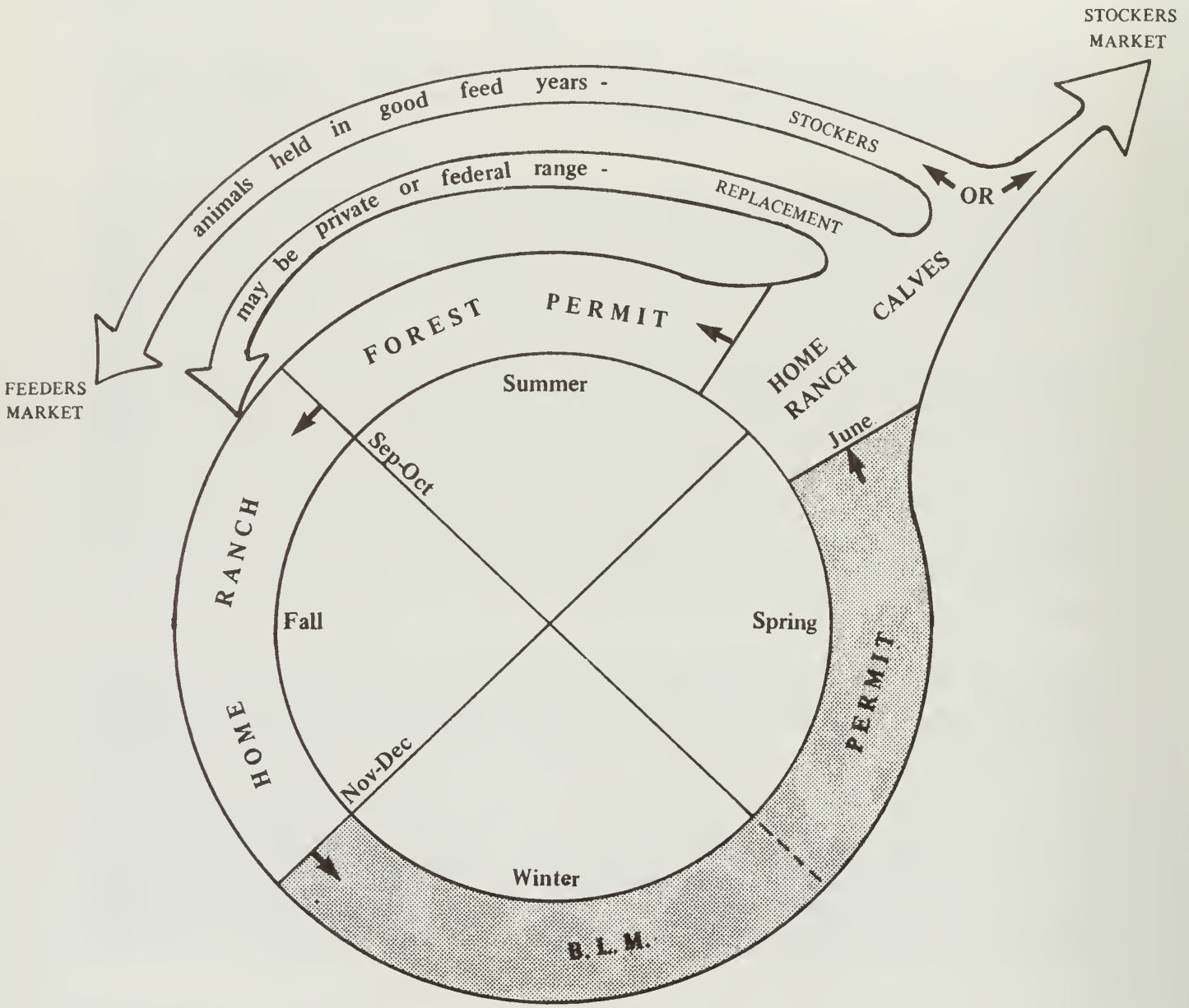


Figure A: COW – CALF OPERATIONS

North Western C.D.C.A.

Figure B:

EAST MOJAVE OPERATIONS

YEAR-ROUND USE ON B.L.M. LANDS

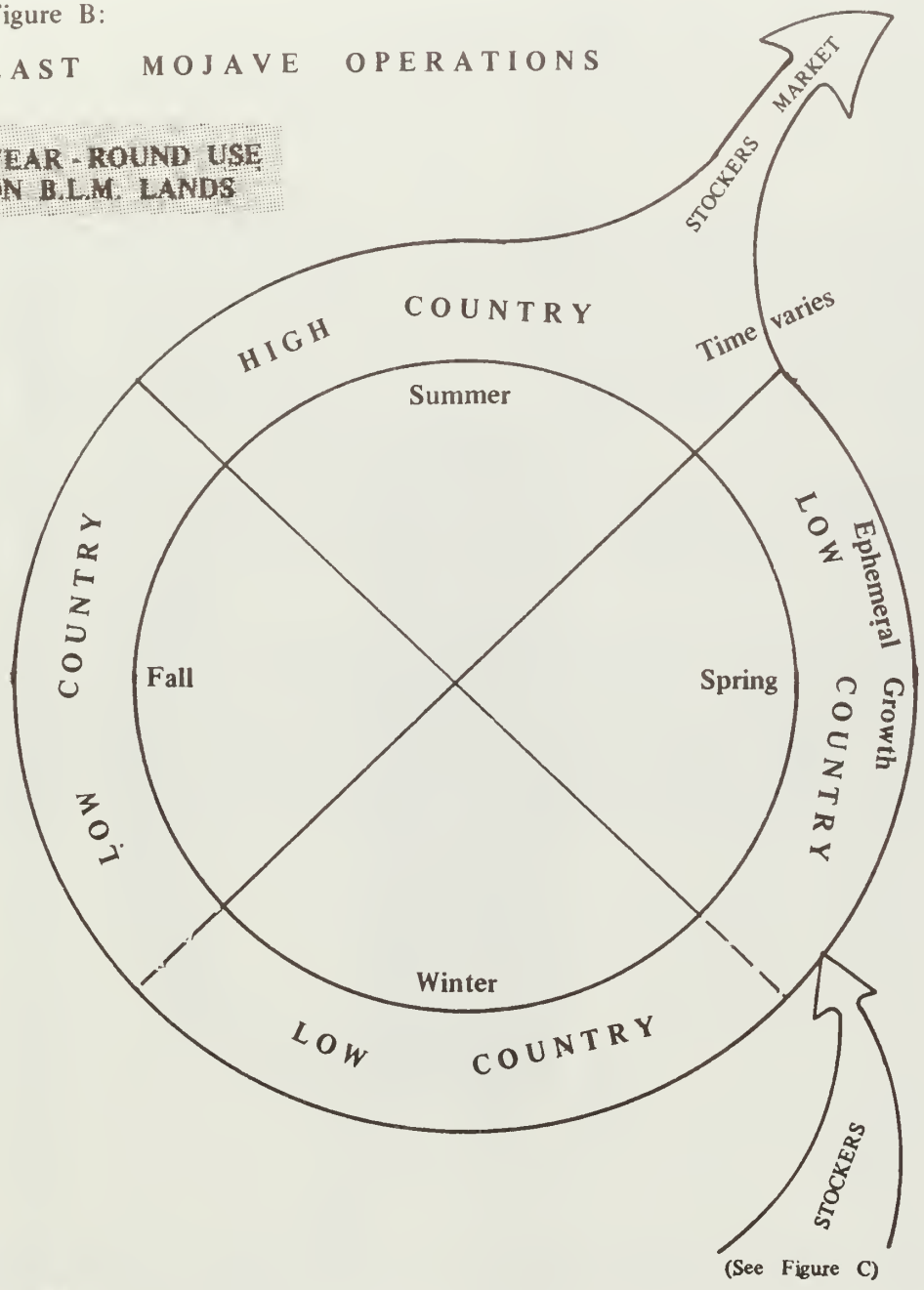
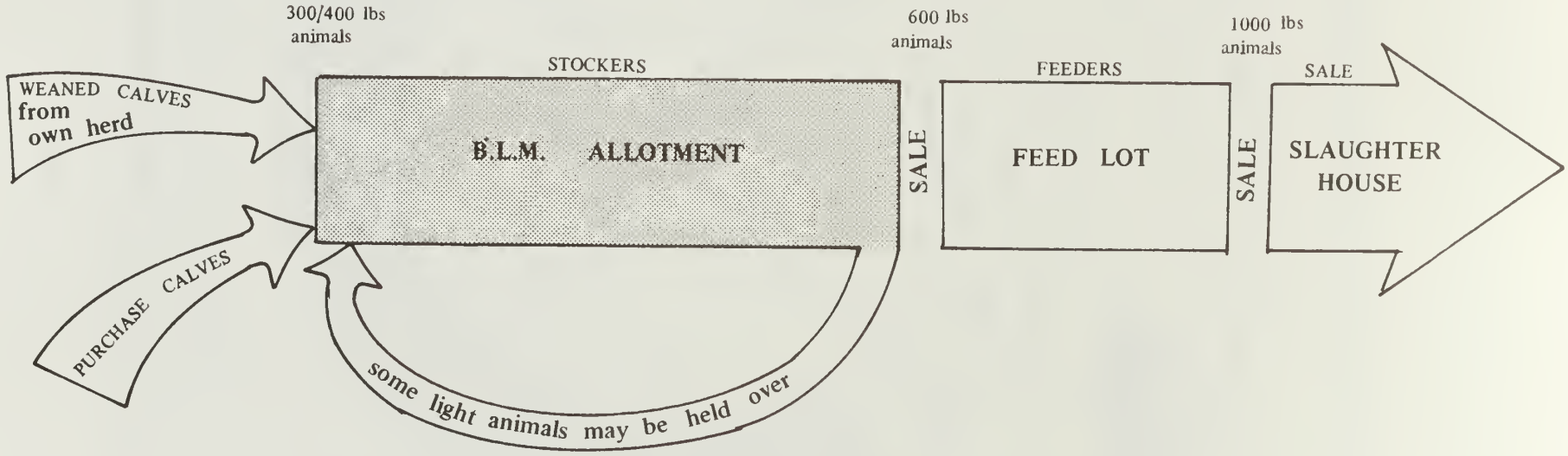


Figure C: STOCKER OPERATIONS

(Steers)



Sheep Operations

Sheep use on BLM lands in the CDCA occurs exclusively in the western Mojave Desert. Historically, these operations represent the first established grazing use of the desert and were the first to be managed under the Taylor Grazing Act.[1] Most of the operators are Basque descendants of the early grazers. The sheep industry is the mainstay of the Basque subculture in Bakersfield, Reno, and throughout the western states. BLM and National Forest forage supplies are critical to the maintenance of this subculture in Southern California. The flocks of sheep are usually herded by hired herders, and the owners live in the Bakersfield area outside of the CDCA. Typically, the herders, though not necessarily Basques, are not fluent in English and have very limited employment opportunities outside of the sheep industry.

The normal operating cycle (Figure D) places sheep on various crop residues and dormant alfalfa fields much of the year. However, in the spring the cropland cannot be grazed because it is being put into production, and no residues exist until after harvest in late May or June. This is the time the desert ranges become ready. While the sheep are on the desert range, the lambs are being fattened, and the adult animals are being bred to produce the next crop of lambs. The quality of feed is particularly critical to both, and the desert forage is uniquely nutritious.

There are few alternatives to use of the desert forage. Feeding alfalfa hay costs nearly $34.00 per AUM; private pasture, if available, costs over $6.00 per AUM. This may be compared to $2.36 per AUM which is the current BLM charge for livestock use.

Table XIII-15-1 shows the average estimated grazing use on CDCA grazing allotments over a five-year period. Table XIII-15-2 shows numbers of sheep grazed in California and the United States in 1979. Tables XIII-15-3 and XIII-15-4 show sales figures of sheep and cattle grazed on BLM lands. Total sales of livestock grazed on BLM lands in 1979 were: Sheep sales, $5.9 million and cattle sales, $2,544,000, for a grand total of $8,444,000.

[1]The Mojave Grazing District was the first established in California and one of the first in the nation.

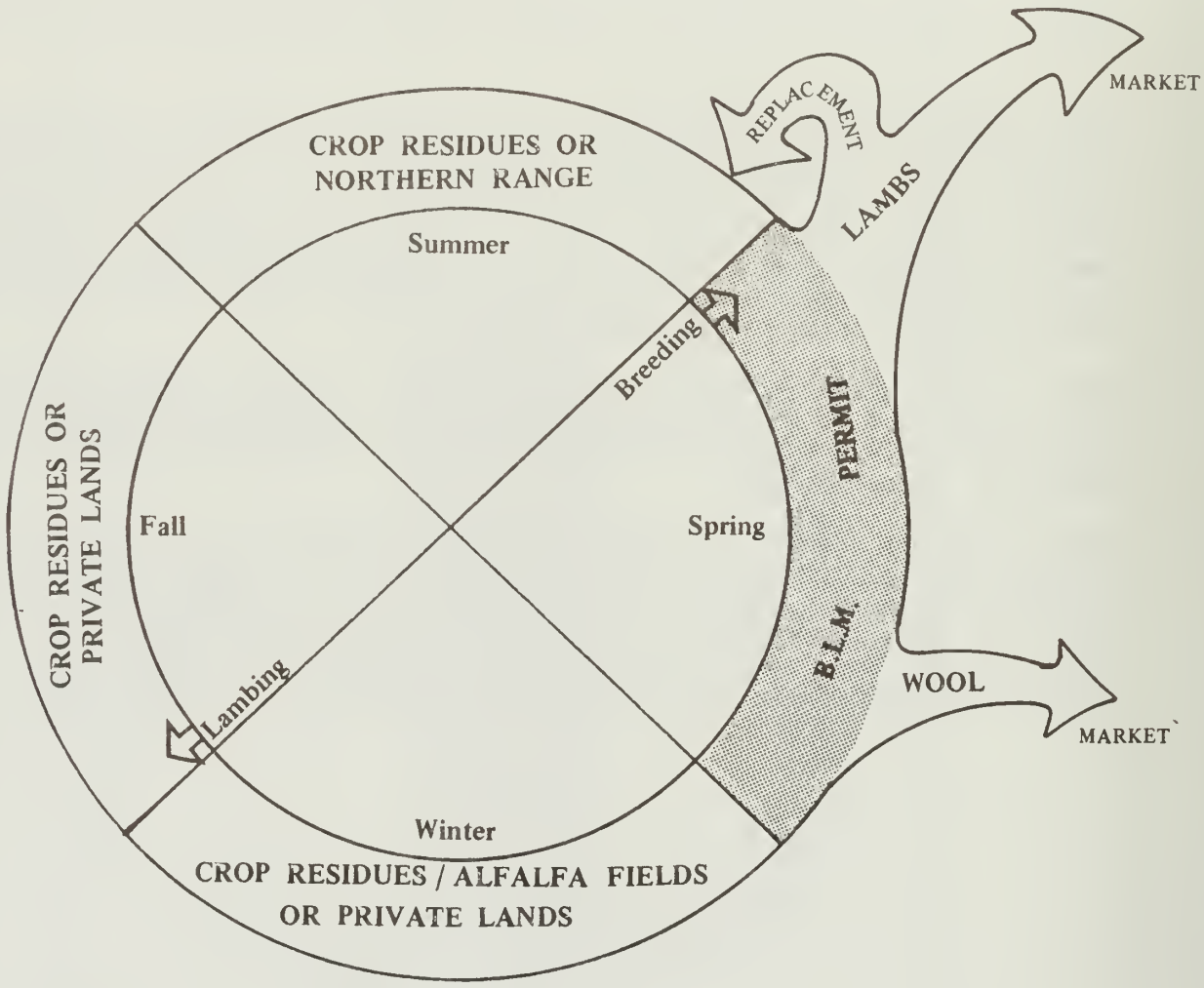


Figure D: SHEEP OPERATIONS

West Mojave

Table XIII-15-1

SUMMARY OF 5-YEAR AVERAGE ESTIMATED USE ON CDCA GRAZING ALLOTMENTS

OPERATOR NUMBER	Location of Base	Allot. Name	5-year Ave. AUMs	5-year Average Number Livestock	Season of Use	Average Number Head in Total Operation (if known)
1202	N	Walker Pass	1890	236 C	10/2-6/30	
1217	N	Walker Pass	3141	350 C	10/2-6/30	
1219	N	Walker Pass	3053	790 C	10/2-6/30	
1500	D	Pahrump	509	260 C	3/1-4/30	500
1501[1]	N	Bissel	308	2000 S	Year long	*
1502[1]	N	Warren	55	2000 S	Year long	*
1514[1]	N	Cantil	274	110 S	M-A-M	12,000*
6206[1]	N	Buckhorn Canyon	702	2633 S	Ephem-eral	
1504	N	Antelope Valley	529	4300 S	Year round	4,300

[1]Same operator.

Legend: D = headquarters in CDCA; N = Headquarters not in CDCA; C = cattle; H= horses; S = sheep.

*-Some of the livestock using these allotments are the same.

Table XIII-15-1 (Continued)
SUMMARY OF 5-YEAR AVERAGE ESTIMATED USE ON CDCA
GRAZING ALLOTMENTS

OPERATOR NUMBER	Location of Base	Allot. Name	5-year Ave. AUMs	5-year Average Number Livestock	Season of Use	Average Number Head in Total Operation (if known)
1505	D	Cantil	85	213 S	M-A-M	4,600
1506	N	Cantil	488	1680 S	M-A-M	2,000
1507	N	Cantil	783	2130 S	M-A-M	3,200
1508	D	Cantil	412	1090 S	M-A-M	
1509	N	Cantil	1159	2762 S	M-A-M	6,000
1510	N	Cantil	433	1100 S	M-A-M	3,400
1511	N	Cantil	332	1399 A	M-A-M	11,500
1512	N	Cantil	636	2309 S	M-A-M	4,700
1513[1]	N	Cantil	1072	3089 S	M-A-M	6,000
6216[2]	N	Shadow Mountain	2557	3833 S	Ephem-eral	
1515	N	Cantil	187	650 S	M-A-M	9,000
1516[2]	N	Cantil Common	1079	3650 S	M-A-M	18,000*
6209[3]	N	Pilot Knob	3584	300 C	Ephem-eral	6,000 C

[1]Same operator.
[2]Same operator. [3]Same operator.

Table XIII-15-1 (Continued)
SUMMARY OF 5-YEAR AVERAGE ESTIMATED USE ON CDCA
GRAZING ALLOTMENTS

OPERATOR NUMBER	Location of Base	Allot. Name	5-year Ave. AUMs	5-year Average Number Livestock	Season of Use	Average Number Head in Total Operation (if known)
6210[3]	N	Boron Sheep	157	700 S	Ephem-eral	*
6210[3]	N	Stoddard Mountain	1645	5733 S	Ephem-eral	*
1521[3]	N	Monolith	200	400 S	M-A-M	*
1517	N	Stock Driveway Cantil	373 951	2600 S 2013 S	M-A-M	6,000
1518	N	Cantil	202	1037 S	M-A-M	3,000*
1518	N	Hansen	185	938 S	M-A-M	*
1518	N	Stock Driveway	383	2500 S	May?	*
1519	N	Cantil	342	1025 S	M-A-M	
1522	D	Hansen	354	38 C	2/20-11/30	
1523[1]	N	Hansen	154	392 S	3/16-5/31	
1523[4]	N	Stock Driveway	409	2750 S	May	

[1]Same operator.
[3]Same operator.
[4]Same operator.

Table XIII-15-1 (Continued)
SUMMARY OF 5-YEAR AVERAGE ESTIMATED USE ON CDCA
GRAZING ALLOTMENTS

OPERATOR NUMBER	Location of Base	Allot. Name	5-year Ave. AUMs	5-year Average Number Livestock	Season of Use	Average Number Head in Total Operation (if known)
6215[4]	N	Spangler Hills	999	3166 S	Ephem-eral	
1524	N	Stock Driveway Hansen	188 347	1650 1011 S	M-A-M	4,000
1525	N	Rudnick	14446	3060 C	Year long	Buys & sells steer
1526	N	Rudnick	192	32 C	3/1-8/31	44
1527	D	Tunawee	1128	487	2/16-5/31	4,000
1528	D	Tunawee	52	100		
1529	D	Darwin	43	6 H	11/16-7/5	
1530[1]	D	Olancha	411	118 C	3/1-6/15	673*
1530[5]	D	Lacey-Cactus-McCloud	3563	585 C	11/1-5/31	*

[1]Same operator.
[4]Same operator.
[5]Same operator.

Table XIII-15-1 (Continued)
SUMMARY OF 5-YEAR AVERAGE ESTIMATED USE ON CDCA
GRAZING ALLOTMENTS

OPERATOR NUMBER	Location of Base	Allot. Name	5-year Ave. AUMs	5-year Average Number Livestock	Season of Use	Average Number Head in Total Operation (if known)
1531	D	Olancha	0	0		
1532	D	Hunter Mountain	1105	150 C	11/20-6/30	300
1533	N	Rudnick	343	120 C	2/15-9/15	
1535	D	Oak Creek	16	45 C	Year round	45
1600	D	Oasis Ranch	656	250		
1601	D	Bar 99	307	250		
1604	N	Last Chance	3267	1790		
1605	D	Deep Springs	1250	250		
1606	N	South Oasis	397 (3 yr)	80		
5308	N	Fishlake Valley	52	100 Estimate		
5416	D	Crescent Peak	1560	130	Year long	700
6201	D	Valley Well	194	2 C	Year long	
6202	N	Superior Valley	2247	4727 S	Ephem-eral	

Table XIII-15-1 (Continued)
SUMMARY OF 5-YEAR AVERAGE ESTIMATED USE ON CDCA
GRAZING ALLOTMENTS

OPERATOR NUMBER	Location of Base	Allot. Name	5-year Ave. AUMs	5-year Average Number Livestock	Season of Use	Average Number Head in Total Operation (if known)
6204	D	Rattle-snake Canyon	1044	87 C	Ephem-eral	70-80
6205	N	Lava Mountains	568	1578 S	Ephem-eral	
6207	N	Gravel Hills	2698	8250 S	Ephem-eral	
6208	N	Goldstone	572	1783 S	Ephem-eral	
6217	D	White-water Canyon	768	88 C	Year long	82
6218	D	Harper Dry Lake	740	108 C	Year round	150
6218	D	Newberry-Ord	1062	108 C	Year round	
6400	N	Valley View	8785	707 C	Year long	
6402	D	Colton Hills	2880	240 C	Year long	
6403	N	Clark Mountain	1872+	156 C	Year long	
6407	D	Horse-thief Springs	2418	202 C	Year long	

Table XIII-15-1 (Continued)
SUMMARY OF 5-YEAR AVERAGE ESTIMATED USE ON CDCA
GRAZING ALLOTMENTS

OPERATOR NUMBER	Location of Base	Allot. Name	5-year Ave. AUMs	5-year Average Number Livestock	Season of Use	Average Number Head in Total Operation (if known)
6408	D	Kessler Springs	8016	668 C	Year long	
6409	D	Valley Wells	4923	395 C	Year long	
6410	D	Lanfair Valley	13103	1014 C	Year long	
6411	D	Granite Mountain	4716	393 C	Year long	
6412	D	Gold Valley	1200	100 C	Year long	
6415[1]	D	Afton Canyon	359	120 C	Emphem eral	100*
6419[6]	D	Cronese Lake	1019	340 C	Ephem- eral	*
6416	D	Round Valley	26	100 C	Year long	
6417	D	Jean Lake	312	26 C	Year long	
6476	D	Lazy Daisy	3192	266 C	Year long	

[1]Same operator.
[6]Same operator.

Table XIII-15-1 (Continued)
SUMMARY OF 5-YEAR AVERAGE ESTIMATED USE ON CDCA
GRAZING ALLOTMENTS

OPERATOR NUMBER	Location of Base	Allot. Name	5-year Ave. AUMs	5-year Average Number Livestock	Season of Use	Average Number Head in Total Operation (if known)
6466	N	Ford Dry Lake	2720	3400 S	Feb-May	
7204	D	Piute Valley	180	60 C	Ephem-eral	

Table XIII-15-2

NUMBER OF SHEEP GRAZED IN UNITED STATES AND IN CALIFORNIA, 1979

UNITED STATES		CALIFORNIA	
State	Number	County	Number
Texas	2,250,000	Kern County	150,000
Wyoming	985,000	Fresno County	98,000
California	965,000	Tehama County	78,000
TOTALS	10,656,800		965,000

Source: California Livestock Statistics - 1978, California Crop and Livestock Reporting Service, Number of head on farms (1979).

Table XIII-15-3

SALES FROM SHEEP GRAZED ON BLM LANDS IN 1979

UNIT	Sales Data
Number of sheep =	75,000
Average lamb crop to market =	100% (net of replacements and deaths)
Lamb weight =	112 lbs.
Lamb price =	$0.61/lb.
Ewe price =	$90. each
Wool yield =	9.5 lbs./ewe
Wool price =	$0.95/lb.
Value of lamb sales =	$0.61/lb. x 112 lbs. x 75,000 ewes: $5,124,000.
Value of wool sales =	$0.95/lb. x 9.5 lbs. x 75,000 ewes: $676,875.
Total sales =	$5,124,000 + $676,875 = $5,800,875: $5,900,000.

Source: Livestock market news reports, BLM case files, rancher interviews, Frank Munoz (Joe Mendiburu Land and Livestock Co.), Phil Etchevery.

Table XIII- 15-4

SALES FROM CATTLE GRAZED ON BLM LANDS

UNIT	Sales Data
Number of cattle =	14,000 head (10,000 cows, 4,000 steer)
Calf crop to market =	60%
Calf weight =	300 lbs.
Calf price =	$0.60/lb.
Cow price =	$0.47/lb.
Steer price =	$0.57/lb.
Cow weight =	600 lbs.
Steer weight =	600 lbs.
Cull rate =	4%
Cull price =	$0.40/lb.
Value of calf sales =	$0.60/lb. x 300 lbs. x 10,000 cows x 60% = $1,080,000.
Value of steer sales =	$0.57 x 600 lbs. x 4,000 = $1,368,000.
Value of culled cows =	$0.40/lbs. x 600 lb. x 10,000 x 4% = $96,000.
Total cattle sales =	$2,544,000.

Sources: Livestock market news reports, BLM case files, rancher interviews.

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